

SOL005 - NS Lifecycle Management Interface

Overview

SOL005 - NS Lifecycle Management Interface IMPORTANT: Please note that this file might be not aligned to the current version of the ETSI Group Specification it refers to and has not been approved by the ETSI NFV ISG. In case of discrepancies the published ETSI Group Specification takes precedence. Please report bugs to <https://forge.etsi.org/bugzilla/buglist.cgi?component=Nfv-Openapis>

Version information

Version : 1.0.0

Contact information

Contact : NFV-SOL WG

License information

License : ETSI Forge copyright notice

License URL : <https://forge.etsi.org/etsi-forge-copyright-notice.txt>

Terms of service : null

URI scheme

BasePath : /nslcm/v1

Schemes : HTTPS

Consumes

- `application/json`

Produces

- `application/json`

External Docs

Description : ETSI GS NFV-SOL 005 V2.4.1

URL : http://www.etsi.org/deliver/etsi_gs/NFV-SOL/001_099/005/02.04.01_60/gs_NFV-SOL005v020401p.pdf

Paths

Notify about NS lifecycle change

POST /URI_is_provided_by_the_client_when_creating_the_subscription-
NsIdentifierCreationNotification

Description

The POST method delivers a notification from the server to the client. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.18.3.1-1 and 6.4.18.3.1-2.

Parameters

| Type | Name | Description | Schema |
|--------|--|--|---|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Body | NsIdentifierC reationNotific ation <i>required</i> | A notification about the creation of a NS identifier and the related NS instance resource. | NsIdentifierCreation Notification |

NsIdentifierCreationNotification

| Name | Schema |
|--|--|
| NsIdentifierCreationNotification <i>optional</i> | NsIdentifierCreationNotification |

NsIdentifierCreationNotification

| Name | Description | Schema |
|----------------------------------|--|------------------------|
| _links <i>optional</i> | This type represents the links to resources that a notification can contain. | _links |

| Name | Description | Schema |
|--|--|--------------------|
| notificationType <i>optional</i> | Discriminator for the different notification types. Shall be set to "NsIdentifierDeletionNotification" for this notification type. | string |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| subscriptionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| timestamp <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |

links

| Name | Description | Schema |
|--|--|------------------------------|
| lcOpOcc <i>optional</i> | This type represents a link to a resource. | lcOpOcc |
| nsInstance <i>required</i> | This type represents a link to a resource. | nsInstance |
| subscription <i>optional</i> | This type represents a link to a resource. | subscription |

lcOpOcc

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nsInstance

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

subscription

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

Responses

| HTTP Code | Description | Schema |
|------------|---|------------------------------|
| 204 | <p>204 No Content The notification was delivered successfully.</p> <p>Headers :</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | No Content |
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Notify about NS lifecycle change

POST /URI_is_provided_by_the_client_when_creating_the_subscription-
NsIdentifierDeletionNotification

Description

The POST method delivers a notification from the server to the client. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.18.3.1-1 and 6.4.18.3.1-2.

Parameters

| Type | Name | Description | Schema |
|---------------|--|--|--|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Body | NsIdentifierDeletionNotification <i>required</i> | A notification about the deletion of a NS identifier and the related NS instance resource. | NsIdentifierDeletionNotification |

NsIdentifierDeletionNotification

| Name | Schema |
|--|--|
| NsIdentifierDeletionNotification <i>optional</i> | NsIdentifierDeletionNotification |

NsIdentifierDeletionNotification

| Name | Description | Schema |
|--|--|------------------------|
| _links <i>optional</i> | This type represents the links to resources that a notification can contain. | _links |
| notificationType <i>optional</i> | Discriminator for the different notification types. Shall be set to "NsIdentifierDeletionNotification" for this notification type. | string |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| subscriptionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| timestamp <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |

_links

| Name | Description | Schema |
|--|--|------------------------------|
| lcOpOcc <i>optional</i> | This type represents a link to a resource. | lcOpOcc |
| nsInstance <i>required</i> | This type represents a link to a resource. | nsInstance |
| subscription <i>optional</i> | This type represents a link to a resource. | subscription |

lcOpOcc

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nsInstance

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

subscription

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

Responses

| HTTP Code | Description | Schema |
|------------|---|------------------------------|
| 204 | <p>204 No Content The notification was delivered successfully.</p> <p>Headers :</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | No Content |
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Test the notification endpoint.

```
GET /URI_is_provided_by_the_client_when_creating_the_subscription-
NsIdentifierDeletionNotification
```

Description

Query NS Instances. The GET method queries information about multiple NS instances. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.2.3.2-1 and 6.4.2.3.2-2.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |

Responses

| HTTP Code | Description | Schema |
|------------|---|------------|
| 204 | 204 No Content The notification endpoint was tested successfully. The response body shall be empty. Headers : WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. | No Content |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|--------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Notify about NS lifecycle change

POST /URI_is_provided_by_the_client_when_creating_the_subscription-
NsLcmOperationOccurrenceNotification

Description

The POST method delivers a notification from the server to the client. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.18.3.1-1 and 6.4.18.3.1-2.

Parameters

| Type | Name | Description | Schema |
|---------------|----------------------------------|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |

| Type | Name | Description | Schema |
|--------|--|---|--|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Body | NsLcmOperationOccurrenceNotification <i>required</i> | A notification about lifecycle changes triggered by a NS LCM. operation occurrence. | NsLcmOperationOccurrenceNotification |

NsLcmOperationOccurrenceNotification

| Name | Schema |
|--|--|
| NsLcmOperationOccurrenceNotification <i>optional</i> | NsLcmOperationOccurrenceNotification |

NsLcmOperationOccurrenceNotification

| Name | Description | Schema |
|---------------------------------------|---|---|
| _links <i>optional</i> | This type represents the links to resources that a notification can contain. | _links |
| affectedNs <i>optional</i> | Information about the SAP instances that were affected during the lifecycle operation. See note. | < affectedNs > array |
| affectedPnf <i>optional</i> | This type provides information about added, deleted and modified PNFs. It shall comply with the provisions in Table 6.5.3.3-1. | affectedPnf |
| affectedSap <i>optional</i> | The enumeration NsLcmOpType represents those lifecycle operations that trigger a NS lifecycle management operation occurrence notification. Value Description ———— ———— INSTANTIATE Represents the "Instantiate NS" LCM operation. SCALE Represents the "Scale NS" LCM operation. UPDATE Represents the "Update NS" LCM operation. TERMINATE Represents the "Terminate NS" LCM operation. HEAL Represents the "Heal NS" LCM operation. | enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) |

| Name | Description | Schema |
|---|--|---|
| affectedVl <i>optional</i> | Information about the VL instances that were affected during the lifecycle operation. | < affectedVl > array |
| affectedVnf <i>optional</i> | This type provides information about added, deleted and modified VNFs. It shall comply with the provisions in Table 6.5.3.2-1. | affectedVnf |
| affectedVnffg <i>optional</i> | Information about the VNFFG instances that were affected during the lifecycle operation. | < affectedVnffg > array |
| error <i>optional</i> | The definition of the general "ProblemDetails" data structure from IETF RFC 7807 [19] is reproduced in this structure. Compared to the general framework defined in IETF RFC 7807 [19], the "status" and "detail" attributes are mandated to be included by the present document, to ensure that the response contains additional textual information about an error. IETF RFC 7807 [19] foresees extensibility of the "ProblemDetails" type. It is possible that particular APIs in the present document, or particular implementations, define extensions to define additional attributes that provide more information about the error. The description column only provides some explanation of the meaning to Facilitate understanding of the design. For a full description, see IETF RFC 7807 [19]. | error |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| isAutomaticInvocation <i>optional</i> | Set to true if this NS LCM operation occurrence has been automatically triggered by the NFVO. This occurs in case of auto-scaling, auto-healing and when a nested NS is modified as a result of an operation on its composite NS. Set to false otherwise. | boolean |
| notificationStatus <i>optional</i> | Indicates whether this notification reports about the start of a NS lifecycle operation or the result of a NS lifecycle operation. Permitted values: - START: Informs about the start of the NS LCM operation occurrence. - RESULT: Informs about the final or intermediate result of the NS LCM operation occurrence. | enum (START, RESULT) |
| notificationType <i>optional</i> | Discriminator for the different notification types. Shall be set to "NsLcmOperationOccurrenceNotification" for this notification type. | string |

| Name | Description | Schema |
|--|---|--|
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsLcmOpOccId <i>required</i> | An identifier with the intention of being globally unique. | string |
| operation <i>optional</i> | The enumeration NsLcmOpType represents those lifecycle operations that trigger a NS lifecycle management operation occurrence notification. Value Description —— ——— INSTANTIATE Represents the "Instantiate NS" LCM operation. SCALE Represents the "Scale NS" LCM operation. UPDATE Represents the "Update NS" LCM operation. TERMINATE Represents the "Terminate NS" LCM operation. HEAL Represents the "Heal NS" LCM operation. | enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) |
| operationState <i>optional</i> | The enumeration NsLcmOperationStateType shall comply with the provisions defined in Table 6.5.4.4-1. Value Description —— ——— PROCESSING The LCM operation is currently in execution. COMPLETED The LCM operation has been completed successfully. PARTIALLY_COMPLETED The LCM operation has been partially completed with acceptable errors. FAILED_TEMP The LCM operation has failed and execution has stopped, but the execution of the operation is not considered to be closed. FAILED The LCM operation has failed and it cannot be retried or rolled back, as it is determined that such action won't succeed. ROLLING_BACK The LCM operation is currently being rolled back. ROLLED_BACK The LCM operation has been successfully rolled back, i.e. The state of the VNF prior to the original operation invocation has been restored as closely as possible. | enum (PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) |
| subscriptionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| timestamp <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |

links

| Name | Description | Schema |
|--|--|------------------------------|
| lcOpOcc <i>optional</i> | This type represents a link to a resource. | lcOpOcc |
| nsInstance <i>required</i> | This type represents a link to a resource. | nsInstance |
| subscription <i>optional</i> | This type represents a link to a resource. | subscription |

lcOpOcc

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nsInstance

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

subscription

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

affectedNs

| Name | Description | Schema |
|---|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of lifecycle change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| sapInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|--|--------|
| sapName <i>optional</i> | Human readable name for the SAP. | string |
| sapId <i>required</i> | An identifier with the intention of being globally unique. | string |

affectedPnf

| Name | Description | Schema |
|--|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | < string > array |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedVl

| Name | Description | Schema |
|--------------------------------------|--|--|
| changeType <i>required</i> | Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY * LINK_PORT_ADDED * LINK_PORT_REMOVED For a temporary resource, an AffectedVirtualLink structure exists as long as the temporary resource exists. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY, LINK_PORT_ADDED, LINK_PORT_REMOVED) |

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| virtualLinkDescriptorId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

affectedVnf

| Name | Description | Schema |
|--|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |

| Name | Description | Schema |
|---|---|--|
| changeType <i>optional</i> | Signals the type of change Permitted values: - ADD - REMOVE - INSTANTIATE - TERMINATE - SCALE - CHANGE_FLAVOUR - HEAL - OPERATE - MODIFY_INFORMATION - CHANGE_EXTERNAL_VNF_CONNECTIVITY | enum (ADD, REMOVE, INSTANTIATE, TERMINATE, SCALE, CHANGE_FLAVOUR, HEAL, OPERATE, MODIFY_INFORMATION, CHANGE_EXTERNAL_VNF_CONNECTIVITY) |
| changedInfo <i>optional</i> | Information about the changed VNF instance information, including VNF configurable properties,if applicable. When the "changedInfo" attribute is present, either the "changedVnfInfo" attribute or the "changedExtConnectivity" attribute or both shall be present. | changedInfo |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfName <i>optional</i> | Name of the VNF Instance. | string |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

changedInfo

| Name | Description | Schema |
|--|-------------|--|
| changedExtConnectivity <i>optional</i> | | changedExtConnectivity |

| Name | Description | Schema |
|--|--|--------------------------------|
| changedVnfInfo <i>optional</i> | This type represents the information that is requested to be modified for a VNF instance. The information to be modified shall comply with the associated NSD. EXAMPLE. The vnfPkgId attribute value for a particular VNF instance can only be updated with a value that matches the identifier value of a VNF package whose vnfdId is present in the associated profile of the NSD. | changedVnfInfo |

changedExtConnectivity

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--------------------------------------|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |

| Name | Description | Schema |
|--|--|--------|
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

changedVnfInfo

| Name | Description | Schema |
|--------------------------------------|---|--------|
| Extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |

| Name | Description | Schema |
|---|---|--------|
| Metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | New value of the "vnfInstanceDescription" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfInstanceName <i>optional</i> | New value of the "vnfInstanceName" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfPkgId <i>optional</i> | An identifier with the intention of being globally unique. | string |

affectedVnffg

| Name | Description | Schema |
|---|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - DELETE - MODIFY | enum (ADD, DELETE, MODIFY) |
| vnffgInstanceId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

error

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Responses

| HTTP Code | Description | Schema |
|------------------|---|---------------|
| 204 | 204 No Content The notification was delivered successfully. Headers : WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. | No Content |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|--------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Create a NS instance resource.

POST /ns_instances

Description

The POST method creates a new NS instance resource.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |

| Type | Name | Description | Schema |
|--------|--|---|----------------------|
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Body | body <i>required</i> | | body |

body

| Name | Schema |
|---|---------------------------------|
| CreateNsRequest <i>required</i> | CreateNsRequest |

CreateNsRequest

| Name | Description | Schema |
|---|--|--------|
| nsDescription <i>required</i> | Human-readable description of the NS instance to be created. | string |
| nsName <i>required</i> | Human-readable name of the NS instance to be created. | string |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 201 | <p>201 Created A NS Instance identifier was created successfully. The response body shall contain a representation of the created NS instance, as defined in clause 6.5.2.8. The HTTP response shall include a "Location" HTTP header that contains the resource URI of the created NS instance.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response. This header field shall be present if the response has a non-empty message body.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 201 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 201

| Name | Description | Schema |
|--------------------------------------|--|------------|
| NsInstance <i>optional</i> | This type represents a response for Query NS operation. It shall comply with the provisions defined in Table 6.5.2.10-1. | NsInstance |

NsInstance

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |

| Name | Description | Schema |
|---|---|---|
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|--------------------------------|--|----------------------|
| heal <i>optional</i> | This type represents a link to a resource. | heal |

| Name | Description | Schema |
|---|--|--|
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|--|
| affinityOrAntiAffinity <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP ZONE ZONE_GROUP NFVI_NODE. | enum (NFVI_POP, ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |

| Name | Description | Schema |
|--|---|------------------|
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|--|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|--|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------|
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|--|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---------------------------------------|--|--------|
| description <i>optional</i> | Human readable description for the SAP instance. | string |

| Name | Description | Schema |
|---|--|--|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |

| Name | Description | Schema |
|---|---|--|
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--|---|--------------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |

| Name | Description | Schema |
|--|---|--------|
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|--------|
| vimConnectio nId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelReso urceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|--|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedV nfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationS tate <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATE D, INSTANTIATED) |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigura bleProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |

| Name | Description | Schema |
|--|---|--------|
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|---|--|---|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLS the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--|---|--|
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLs of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|---------------------------------------|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |

| Name | Description | Schema |
|-------------------------------------|--|-----------------------|
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|---|--|---------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |

| Name | Description | Schema |
|--|--|---|
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|-------------------------------------|--|--------|
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be \leq maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|---|
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageeDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| computeResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResourceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------------------------------------|
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|--|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLink InfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |

| Name | Description | Schema |
|---|---|------------------|
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |

| Name | Description | Schema |
|----------------------------------|---|---------------|
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Query multiple NS instances.

GET /ns_instances

Description

Query NS Instances. The GET method queries information about multiple NS instances. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.2.3.2-1 and 6.4.2.3.2-2.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Query | all_fields <i>optional</i> | "Include all complex attributes in the response. See clause 4.3.3 for details. The NFVO shall support this parameter." | string |
| Query | exclude_default <i>optional</i> | "Indicates to exclude the following complex attributes from the response. See clause 4.3.3 for details. The NFVO shall support this parameter. The following attributes shall be excluded from the NsInstance structure in the response body if this parameter is provided, or none of the parameters "all_fields," "fields", "exclude_fields", "exclude_default" are provided: - vnfnInstances - pnfInfo - virtualLinkInfo - vnffgInfo - sapInfo - nsScaleStatus - additionalAffinityOrAntiAffinityRules" | string |

| Type | Name | Description | Schema |
|-------|--|---|--------|
| Query | exclude_fields <i>optional</i> | "Complex attributes to be excluded from the response. See clause 4.3.3 for details. The NFVO should support this parameter." | string |
| Query | fields <i>optional</i> | "Complex attributes to be included into the response. See clause 4.3.3 for details. The NFVO should support this parameter." | string |
| Query | filter <i>optional</i> | "Attribute-based filtering parameters according to clause 4.3.2. The NFVO shall support receiving filtering parameters as part of the URI query string. The OSS/BSS may supply filtering parameters. All attribute names that appear in the NsInstance and in data types referenced from it shall be supported in attribute-based filtering parameters" | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|---|
| 200 | <p>200 OK Information about zero or more NS instances was queried successfully. The response body shall contain representations of zero or more NS instances, as defined in clause 6.5.2.8.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | < Response 200 > array |
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 200

| Name | Description | Schema |
|--------------------------------------|--|----------------------------|
| NsInstance <i>optional</i> | This type represents a response for Query NS operation. It shall comply with the provisions defined in Table 6.5.2.10-1. | NsInstance |

NsInstance

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |

| Name | Description | Schema |
|---|--|---|
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|---|--|---|
| heal <i>optional</i> | This type represents a link to a resource. | heal |
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |

| Name | Description | Schema |
|-------------------------------------|--|---------------------------|
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|--|
| affinityOrAntiAffinity <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP ZONE ZONE_GROUP NFVI_NODE. | enum (NFVI_POP, ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|--|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|--|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|--|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |

| Name | Description | Schema |
|--------------------------------|---|-------------------|
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---|---|--|
| description <i>optional</i> | Human readable description for the SAP instance. | string |
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|---|---|------------------------------------|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|--|---|---|
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--|---|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

| Name | Description | Schema |
|---|--|--------|
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|---|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedVnfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationState <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |

| Name | Description | Schema |
|--|--|--------|
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|---|---|---|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLS the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |

| Name | Description | Schema |
|--|--|--|
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLs of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |

| Name | Description | Schema |
|---|--|-------------------------|
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|------------------------------------|--|-----------------|
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |

| Name | Description | Schema |
|--------------------------------|---|-------------------|
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--------------------------------------|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |

| Name | Description | Schema |
|--|--|--------|
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|-------------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |

| Name | Description | Schema |
|---------------------------------|--|--------|
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|--|---|---|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageeDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|--------|
| vimConnectio nId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelReso urceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|---|---|--------------------------------------|
| computeReso urce <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResour ceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcPInfo

| Name | Description | Schema |
|--|---|---|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |

| Name | Description | Schema |
|---|--|----------------------------|
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|------------------------------------|--|-----------------|
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |

| Name | Description | Schema |
|--------------------------------|---|-------------------|
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|---|--|--------------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLinkInfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|---------------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Read an individual NS instance resource.

```
GET /ns_instances/{nsInstanceId}
```

Description

The GET method retrieves information about a NS instance by reading an individual NS instance resource.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Path | nsInstanceId <i>required</i> | Identifier of the NS instance. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 200 | <p>200 OK Information about an individual NS instance was queried successfully. The response body shall contain a representation of the NS instance.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response. This header field shall be present if the response has a non-empty message body.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 200 |
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 200

| Name | Description | Schema |
|--------------------------------------|--|------------|
| NsInstance <i>optional</i> | This type represents a response for Query NS operation. It shall comply with the provisions defined in Table 6.5.2.10-1. | NsInstance |

NsInstance

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|---|--|
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|---|--|--|
| heal <i>optional</i> | This type represents a link to a resource. | heal |
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|--|
| affinityOrAntiAffinity <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP ZONE ZONE_GROUP NFVI_NODE. | enum (NFVI_POP, ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |

| Name | Description | Schema |
|--|---|------------------|
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|--|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|--|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------|
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|--|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---------------------------------------|--|--------|
| description <i>optional</i> | Human readable description for the SAP instance. | string |

| Name | Description | Schema |
|---|---|--|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |

| Name | Description | Schema |
|---|---|--|
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--|---|--------------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |

| Name | Description | Schema |
|--|---|--------|
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|--------|
| vimConnectio nId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelReso urceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|--|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedV nfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationS tate <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATE D, INSTANTIATED) |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigura bleProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |

| Name | Description | Schema |
|--|---|--------|
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|---|---|---|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLDs the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--|---|--|
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLs of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|---------------------------------------|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |

| Name | Description | Schema |
|-------------------------------------|--|-----------------------|
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|---|--|---------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |

| Name | Description | Schema |
|--|--|---|
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|-------------------------------------|--|--------|
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be \leq maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|---|
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageeDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| computeResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResourceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------------------------------------|
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|---|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLinkInfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |

| Name | Description | Schema |
|---|---|------------------|
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |

| Name | Description | Schema |
|----------------------------------|---|---------------|
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Delete NS instance resource.

```
DELETE /ns_instances/{nsInstanceId}
```

Description

Delete NS Identifier This method deletes an individual NS instance resource.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Path | nsInstanceId <i>required</i> | Identifier of the NS instance. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------|
| 204 | 204 No Content The NS instance resource and the associated NS identifier were deleted successfully. The response body shall be empty. Headers : WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. | No Content |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Error: Invalid attribute selector. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Error: The operation cannot be executed currently, due to a conflict with the state of the NS LCM operation occurrence resource. Typically, this is due to the fact that the NS LCM operation occurrence is not in FAILED_TEMP state, or another error handling action is starting, such as retry or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 412 | <p>Precondition Failed A precondition given in an HTTP request header is not fulfilled. Typically, this is due to an ETag mismatch, indicating that the resource was modified by another entity. The response body should contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 412 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 412

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|--------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Heal a NS instance.

```
POST /ns_instances/{nsInstanceId}/heal
```

Description

The POST method requests to heal a NS instance resource. This method shall follow the provisions specified in the Tables 6.4.7.3.1-1 and 6.4.7.3.1-2 for URI query parameters, request and response data structures, and response codes.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |

| Type | Name | Description | Schema |
|--------|--|---|----------------------|
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Path | nsInstanceId <i>required</i> | Identifier of the NS instance to be healed. | string |
| Body | body <i>required</i> | | body |

body

| Name | Description | Schema |
|---|---|-------------------------------|
| HealNsRequest <i>required</i> | This operation supports the healing of an NS instance, either by healing the complete NS instance or by healing one of more of the VNF instances that are part of this NS. It shall comply with the provisions defined in Table 6.5.2.13-1. | HealNsRequest |

HealNsRequest

| Name | Description | Schema |
|---------------------------------------|---|--|
| healNsData <i>optional</i> | This type represents the information used to heal a NS. It shall comply with the provisions defined in Table 6.5.3.43-1. | healNsData |
| healVnfData <i>optional</i> | Additional parameters passed by the NFVO as input to the healing process, specific to the VNF being healed, as declared in the VNFD as part of "HealVnfOpConfig". | < healVnfData > array |

healNsData

| Name | Description | Schema |
|---|---|------------------|
| actionsHealing <i>optional</i> | Used to specify dedicated healing actions in a particular order (e.g. as a script). The actionsHealing attribute can be used to provide a specific script whose content and actions might only be possible to be derived during runtime. | < string > array |
| additionalParamsforNs <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |

| Name | Description | Schema |
|---|---|---|
| degreeHealing <i>required</i> | Indicates the degree of healing. Possible values include: - HEAL_RESTORE: Complete the healing of the NS restoring the state of the NS before the failure occurred - HEAL_QOS: Complete the healing of the NS based on the newest QoS values - HEAL_RESET: Complete the healing of the NS resetting to the original instantiation state of the NS - PARTIAL_HEALING | enum (HEAL_RESTORE, HEAL_QOS, HEAL_RESET, PARTIAL_HEALING) |
| healScript <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

healVnfData

| Name | Description | Schema |
|--|---|--------|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| cause <i>optional</i> | Indicates the reason why a healing procedure is required. | string |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 202 | <p>202 Accepted The request was accepted for processing, but the processing has not been completed. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "NS lifecycle operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>Location (string (url)) : The resource URI of the created NS instance.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 202 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. Specifically in case of this task resource, the response code 404 shall also returned if the task is not supported for the NS instance represented by the parent resource, which means that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 202

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |

| Name | Description | Schema |
|---|---|---|
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|--------------------------------|--|----------------------|
| heal <i>optional</i> | This type represents a link to a resource. | heal |

| Name | Description | Schema |
|---|--|--|
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|--|
| affinityOrAntiAffinity <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP ZONE ZONE_GROUP NFVI_NODE. | enum (NFVI_POP, ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |

| Name | Description | Schema |
|--|---|------------------|
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|--|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|--|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------|
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|--|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---------------------------------------|--|--------|
| description <i>optional</i> | Human readable description for the SAP instance. | string |

| Name | Description | Schema |
|---|--|--|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |

| Name | Description | Schema |
|---|---|--|
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--|---|--------------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |

| Name | Description | Schema |
|--|---|--------|
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|--------|
| vimConnectio nId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelReso urceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|--|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedV nfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationS tate <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATE D, INSTANTIATED) |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigura bleProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |

| Name | Description | Schema |
|--|---|--------|
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|---|--|---|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLs the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--|---|--|
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLs of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|---------------------------------------|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |

| Name | Description | Schema |
|-------------------------------------|--|-----------------------|
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|---|--|---------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |

| Name | Description | Schema |
|--|--|---|
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|-------------------------------------|--|--------|
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be \leq maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|---|
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageeDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| computeResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResourceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------------------------------------|
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|--|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLink InfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |

| Name | Description | Schema |
|---|---|------------------|
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |

| Name | Description | Schema |
|----------------------------------|---|--------------|
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Instantiate a NS.

```
POST /ns_instances/{nsInstanceId}/instantiate
```

Description

The POST method requests to instantiate a NS instance resource.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|----------------------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Path | nsInstanceId <i>required</i> | Identifier of the NS instance to be instantiated. | string |
| Body | body <i>required</i> | | body |

body

| Name | Schema |
|--|--------------------------------------|
| InstantiateNsRequest <i>required</i> | InstantiateNsRequest |

InstantiateNsRequest

| Name | Description | Schema |
|--|--|--|
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Specifies additional affinity or anti-affinity constraint for the VNF instances to be instantiated as part of the NS instantiation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| additionalParamsForNs <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| additionalParamsForVnf <i>optional</i> | Allows the OSS/BSS to provide additional parameter(s) per VNF instance (as opposed to the NS level, which is covered in additionalParamsForNs). This is for VNFs that are to be created by the NFVO as part of the NS instantiation and not for existing VNF that are referenced for reuse.. | < additionalParamsForVnf > array |
| addpnfData <i>optional</i> | Information on the PNF(s) that are part of this NS. | < addpnfData > array |
| localizationLanguage <i>optional</i> | Defines the location constraints for the VNF to be instantiated as part of the NS instantiation. An example can be a constraint for the VNF to be in a specific geographic location.. | < localizationLanguage > array |
| nestedNsInstanceId <i>optional</i> | Specify an existing NS instance to be used as a nested NS within the NS. | < string > array |
| nsFlavourId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsInstantiationLevelId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|---|--|---------------------------|
| sapData <i>optional</i> | Create data concerning the SAPs of this NS. | < sapData > array |
| startTime <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| vnfInstanceData <i>optional</i> | Specify an existing VNF instance to be used in the NS. If needed, the VNF Profile to be used for this VNF instance is also provided. | < vnfInstanceData > array |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|---|
| affinityOrAntiAffinity <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP_ZONE, ZONE_GROUP, NFVI_NODE. | enum (NFVI_POP_ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

additionalParamsForVnf

| Name | Description | Schema |
|--|---|--------|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

addpnfData

| Name | Description | Schema |
|--|--|------------------|
| cpData <i>optional</i> | Address assigned for the PNF external CP(s). | < cpData > array |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>required</i> | Name of the PNF | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpData

| Name | Description | Schema |
|--|--|--------------------------|
| cpInstanceI16 <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>required</i> | Address assigned for this CP. | < cpProtocolData > array |
| cpdId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |

| Name | Description | Schema |
|--------------------------------|---|-------------------|
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

localizationLanguage

| Name | Description | Schema |
|---|--|-------------------------------------|
| locationConstraints <i>optional</i> | This type represents location constraints for a VNF to be instantiated. The location constraints shall be presented as a country code, optionally followed by a civic address based on the format defined by IETF RFC 4776 [13]. | locationConstraints |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

locationConstraints

| Name | Description | Schema |
|---|---|---|
| civicAddressElement <i>optional</i> | Zero or more elements comprising the civic address. | < civicAddressElement > array |
| countryCode <i>required</i> | The two-letter ISO 3166 [29] country code in capital letters. | string |

civicAddressElement

| Name | Description | Schema |
|-----------------------------------|---|---------|
| caType <i>required</i> | Describe the content type of caValue. The value of caType shall comply with Section 3.4 of IETF RFC 4776 [13]. | integer |
| caValue <i>required</i> | Content of civic address element corresponding to the caType. The format caValue shall comply with Section 3.4 of IETF RFC 4776 [13]. | string |

sapData

| Name | Description | Schema |
|---|---|--|
| description <i>required</i> | Human readable description for the SAP. | string |
| sapName <i>required</i> | Human readable name for the SAP. | string |
| sapProtocolData <i>optional</i> | Parameters for configuring the network protocols on the SAP. | < sapProtocolData > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|--|--------------|
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnfInstanceData

| Name | Description | Schema |
|---|--|--------|
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 202 | <p>202 Accepted The request was accepted for processing, but the processing has not been completed. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "NS lifecycle operation occurrence" resource corresponding to the operation.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. Location (string (url)) : The resource URI of the created NS instance. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 202 |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Error: The operation cannot be executed currently, due to a conflict with the state of the NS LCM operation occurrence resource. Typically, this is due to the fact that the NS LCM operation occurrence is not in FAILED_TEMP state, or another error handling action is starting, such as retry or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 202

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|---|
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|---|--|---|
| heal <i>optional</i> | This type represents a link to a resource. | heal |
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|---|
| affinityOrAntiAffinity <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP_ZONE, ZONE_GROUP, NFVI_NODE. | enum (NFVI_POP_ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|---|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|--|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|---|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---|---|--|
| description <i>optional</i> | Human readable description for the SAP instance. | string |
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |

| Name | Description | Schema |
|---------------------------------------|---|--|
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|---|---|--------------------------|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--------------------------------------|---|----------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |

| Name | Description | Schema |
|--|--|--------------------------------|
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|---|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedVnfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationState <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATED, INSTANTIATED) |

| Name | Description | Schema |
|---|---|---------------|
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|--|---|--|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLS the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLS of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|---|---|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|---|
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|---|--------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------------------------------|
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|-------------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be \leq maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |

| Name | Description | Schema |
|--|---|---|
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| computeResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResourceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------------------------------------|
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|---|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLinkInfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |

| Name | Description | Schema |
|---|---|------------------|
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |

| Name | Description | Schema |
|----------------------------------|---|---------------|
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Scale a NS instance.

```
POST /ns_instances/{nsInstanceId}/scale
```

Description

The POST method requests to scale a NS instance resource.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|----------------------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Path | nsInstanceId <i>required</i> | Identifier of the NS instance to be scaled. | string |
| Body | body <i>required</i> | | body |

body

| Name | Description | Schema |
|--|--|--------------------------------|
| ScaleNsRequest <i>required</i> | This type represents a request for the scale NS operation. | ScaleNsRequest |

ScaleNsRequest

| Name | Description | Schema |
|--|--|---|
| scaleNsData <i>optional</i> | This type represents the information to scale a NS. | scaleNsData |
| scaleTime <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| scaleType <i>required</i> | Indicates the type of scaling to be performed. Possible values: - SCALE_NS - SCALE_VNF | enum (SCALE_NS, SCALE_VNF) |
| scaleVnfData <i>optional</i> | The necessary information to scale the referenced NS instance. It shall be present when scaleType = SCALE_VNF. | < scaleVnfData > array |

scaleNsData

| Name | Description | Schema |
|--|--|--|
| additionalParamsForNs <i>optional</i> | This type defines the additional parameters for the VNF instance to be created associated with an NS instance. It shall comply with the provisions defined in Table 6.5.3.22-1. | additionalParamsForNs |
| additionalParamsForVnf <i>optional</i> | Allows the OSS/BSS to provide additional parameter(s) per VNF instance (as opposed to the NS level, which is covered in additionalParamforNs). This is for VNFs that are to be created by the NFVO as part of the NS scaling and not for existing VNF that are covered by the scaleVnfData. | < additionalParamsForVnf > array |
| locationConstraints <i>optional</i> | The location constraints for the VNF to be instantiated as part of the NS scaling. An example can be a constraint for the VNF to be in a specific geographic location. | < locationConstraints > array |
| scaleNsByStepsData <i>optional</i> | This type represents the information used to scale an NS instance by one or more scaling steps, with respect to a particular NS scaling aspect. Performing a scaling step means increasing/decreasing the capacity of an NS instance in a discrete manner, i.e. moving from one NS scale level to another. The NS scaling aspects and their corresponding NS scale levels applicable to the NS instance are declared in the NSD. | scaleNsByStepsData |

| Name | Description | Schema |
|--|--|--|
| scaleNsToLevelData <i>optional</i> | This type represents the information used to scale an NS instance to a target size. The target size is either expressed as an NS instantiation level or as a list of NS scale levels, one per NS scaling aspect, of the current DF. The NS instantiation levels, the NS scaling aspects and their corresponding NS scale levels applicable to the NS instance are declared in the NSD. | scaleNsToLevelData |
| vnfInstanceToBeAdded <i>optional</i> | An existing VNF instance to be added to the NS instance as part of the scaling operation. If needed, the VNF Profile to be used for this VNF instance may also be provided. | < vnfInstanceToBeAdded > array |
| vnfInstanceToBeRemoved <i>optional</i> | The VNF instance to be removed from the NS instance as part of the scaling operation. | < string > array |

additionalParamsForNs

| Name | Description | Schema |
|--|---|--------|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

additionalParamsForVnf

| Name | Description | Schema |
|--|---|--------|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

locationConstraints

| Name | Description | Schema |
|---|--|-------------------------------------|
| locationConstraints <i>optional</i> | This type represents location constraints for a VNF to be instantiated. The location constraints shall be presented as a country code, optionally followed by a civic address based on the format defined by IETF RFC 4776 [13]. | locationConstraints |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

locationConstraints

| Name | Description | Schema |
|---|---|---|
| civicAddressElement <i>optional</i> | Zero or more elements comprising the civic address. | < civicAddressElement > array |
| countryCode <i>required</i> | The two-letter ISO 3166 [29] country code in capital letters. | string |

civicAddressElement

| Name | Description | Schema |
|-----------------------------------|---|---------|
| caType <i>required</i> | Describe the content type of caValue. The value of caType shall comply with Section 3.4 of IETF RFC 4776 [13]. | integer |
| caValue <i>required</i> | Content of civic address element corresponding to the caType. The format caValue shall comply with Section 3.4 of IETF RFC 4776 [13]. | string |

scaleNsByStepsData

| Name | Description | Schema |
|--|---|----------------------------|
| aspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| numberOfSteps <i>optional</i> | The number of scaling steps to be performed. Defaults to 1. | integer |
| scalingDirection <i>required</i> | The scaling direction. Possible values are: - SCALE_IN - SCALE_OUT. | enum (SCALE_IN, SCALE_OUT) |

scaleNsToLevelData

| Name | Description | Schema |
|--|---|---------------------------------------|
| nsInstantiationLevel <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScaleInfo <i>optional</i> | For each NS scaling aspect of the current DF, defines the target NS scale level to which the NS instance is to be scaled. | < nsScaleInfo > array |

nsScaleInfo

| Name | Description | Schema |
|---|--|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

vnfInstanceToBeAdded

| Name | Description | Schema |
|---|--|--------|
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

scaleVnfData

| Name | Description | Schema |
|---|--|---------------------------------|
| scaleByStepData <i>optional</i> | This type describes the information to scale a VNF instance by steps. The NFVO shall then invoke the Scale VNF operation towards the appropriate VNFM. | scaleByStepData |

| Name | Description | Schema |
|--|---|---|
| scaleToLevelData <i>optional</i> | This type describes the information used to scale a VNF instance to a target size. The target size is either expressed as an instantiation level of that DF as defined in the VNFD, or given as a list of scale levels, one per scaling aspect of that DF. Instantiation levels and scaling aspects are declared in the VNFD. The NFVO shall then invoke the ScaleVnfToLevel operation towards the appropriate VNFM.. | scaleToLevelData |
| scaleVnfType <i>required</i> | Type of the scale VNF operation requested. Allowed values are: - SCALE_OUT - SCALE_IN - SCALE_TO_INSTANTIATION_LEVEL - SCALE_TO_SCALE_LEVEL(S) The set of types actually supported depends on the capabilities of the VNF being managed. | enum (SCALE_OUT, SCALE_IN, SCALE_TO_INSTANTIATION_LEVEL, SCALE_TO_SCALE_LEVEL(S)) |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

scaleByStepData

| Name | Description | Schema |
|--|--|---------|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| numberOfSteps <i>optional</i> | Number of scaling steps. It shall be a positive number. Defaults to 1. The VNF provider defines in the VNFD whether or not a particular VNF supports performing more than one step at a time. Such a property in the VNFD applies for all instances of a particular VNF. | integer |

scaleToLevelData

| Name | Description | Schema |
|--|---|--------|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |

| Name | Description | Schema |
|---|--|---|
| vnfInstantiationLevelId <i>optional</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| vnfScaleInfo <i>optional</i> | For each scaling aspect of the current deployment flavor, indicates the target scale level to which the VNF is to be scaled. | < vnfScaleInfo > array |

vnfScaleInfo

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD. | integer |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 202 | <p>202 Accepted The request was accepted for processing, but the processing has not been completed. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "NS lifecycle operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>Location (string (url)) : The resource URI of the created NS instance.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 202 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. Specifically in case of this task resource, the response code 404 shall also returned if the task is not supported for the NS instance represented by the parent resource, which means that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 202

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |

| Name | Description | Schema |
|---|---|---|
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|--------------------------------|--|----------------------|
| heal <i>optional</i> | This type represents a link to a resource. | heal |

| Name | Description | Schema |
|---|--|--|
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|--|
| affinityOrAntiAffiinty <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP ZONE ZONE_GROUP NFVI_NODE. | enum (NFVI_POP, ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |

| Name | Description | Schema |
|--|---|------------------|
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|--|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|--|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------|
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|--|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---------------------------------------|--|--------|
| description <i>optional</i> | Human readable description for the SAP instance. | string |

| Name | Description | Schema |
|---|---|--|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |

| Name | Description | Schema |
|---|---|--|
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--|---|--------------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |

| Name | Description | Schema |
|--|---|--------|
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|--------|
| vimConnectio nId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelReso urceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|--|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedV nfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationS tate <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATE D, INSTANTIATED) |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigura bleProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |

| Name | Description | Schema |
|--|---|--------|
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|---|--|---|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLS the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--|---|--|
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLs of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |

| Name | Description | Schema |
|-------------------------------------|--|-----------------------|
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|---|--|---------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |

| Name | Description | Schema |
|--|--|---|
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|-------------------------------------|--|--------|
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be \leq maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|---|
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageeDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| computeResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResourceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------------------------------------|
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|--|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLink InfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |

| Name | Description | Schema |
|---|---|------------------|
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |

| Name | Description | Schema |
|----------------------------------|---|---------------|
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Terminate a NS instance.

```
POST /ns_instances/{nsInstanceId}/terminate
```

Description

Terminate NS task. The POST method terminates a NS instance. This method can only be used with a NS instance in the INSTANTIATED state. Terminating a NS instance does not delete the NS instance identifier, but rather transitions the NS into the NOT_INSTANTIATED state. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.8.3.1-1 and 6.8.8.3.1-2.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Path | nsInstanceId <i>required</i> | The identifier of the NS instance to be terminated. | string |

| Type | Name | Description | Schema |
|------|--------------------------------|-------------|----------------------|
| Body | body <i>required</i> | | body |

body

| Name | Description | Schema |
|--|---|------------------------------------|
| TerminateNsRequest <i>required</i> | This type represents a NS termination request. It shall comply with the provisions defined in Table 6.5.2.15-1. | TerminateNsRequest |

TerminateNsRequest

| Name | Description | Schema |
|---|---|--------------------|
| terminationTime <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 202 | <p>202 Accepted The request was accepted for processing, but the processing has not been completed. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "NS lifecycle operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>Location (string (url)) : The resource URI of the created NS instance.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 202 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. Specifically in case of this task resource, the response code 404 shall also returned if the task is not supported for the NS instance represented by the parent resource, which means that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 202

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |

| Name | Description | Schema |
|---|---|---|
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|--------------------------------|--|----------------------|
| heal <i>optional</i> | This type represents a link to a resource. | heal |

| Name | Description | Schema |
|---|--|--|
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|---|--|
| affinityOrAntiAffiinty <i>required</i> | The type of the constraint. Permitted values: AFFINITY ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP ZONE ZONE_GROUP NFVI_NODE. | enum (NFVI_POP, ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |

| Name | Description | Schema |
|--|---|------------------|
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|--|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|--|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------|
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|--|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---------------------------------------|--|--------|
| description <i>optional</i> | Human readable description for the SAP instance. | string |

| Name | Description | Schema |
|---|---|--|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |

| Name | Description | Schema |
|---|---|--|
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--|---|--------------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |

| Name | Description | Schema |
|--|---|--------|
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|--------|
| vimConnectio nId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelReso urceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|--|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedV nfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationS tate <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATE D, INSTANTIATED) |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigura bleProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |

| Name | Description | Schema |
|--|---|--------|
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|---|--|---|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLS the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--|---|--|
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLs of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|------------------------------|---|--------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |

| Name | Description | Schema |
|-------------------------------------|--|-----------------------|
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|---|--|---------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |

| Name | Description | Schema |
|--|--|---|
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|-------------------------------------|--|--------|
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be \leq maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|---|
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageeDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| computeResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResourceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------------------------------------|
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|--|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLink InfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |

| Name | Description | Schema |
|---|--|------------------|
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |

| Name | Description | Schema |
|----------------------------------|---|---------------|
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Updates a NS instance.

```
POST /ns_instances/{nsInstanceId}/update
```

Description

Scale NS instance. The POST method requests to scale a NS instance resource.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|----------------------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Path | nsInstanceId <i>required</i> | Identifier of the NS instance to be updated. | string |
| Body | body <i>required</i> | | body |

body

| Name | Description | Schema |
|---|---|---------------------------------|
| UpdateNsRequest <i>required</i> | This operation supports the update of a NS instance, It shall comply with the provisions defined in Table 6.5.2.12-1. | UpdateNsRequest |

UpdateNsRequest

| Name | Description | Schema |
|--|--|--|
| addNestedNsId <i>optional</i> | The identifier of an existing nested NS instance to be added to (nested within) the NS instance. It shall be present only if updateType = "ADD_NESTED_NS". | < string > array |
| addPnfData <i>optional</i> | specifies the PNF to be added into the NS instance. It shall be present only if updateType = "ADD_PNF". | < addPnfData > array |
| addSap <i>optional</i> | Identifies a new SAP to be added to the NS instance. It shall be present only if updateType = "ADD_SAP." | < addSap > array |
| addVnfInstance <i>optional</i> | Identifies an existing VNF instance to be added to the NS instance. It shall be present only if updateType = "ADD_VNF". | < addVnfInstance > array |
| addVnffg <i>optional</i> | Specify the new VNFFG to be created to the NS Instance. It shall be present only if updateType = "ADD_VNFFG". | < addVnffg > array |
| assocNewNsdVersionData <i>optional</i> | This type specifies a new NSD version that is associated to the NS instance. After issuing the Update NS operation with updateType = "AssocNewNsdVersion", the NFVO shall use the referred NSD as a basis for the given NS instance. Different versions of the same NSD have same nsdInvariantId, but different nsdId attributes, therefore if the nsdInvariantId of the NSD version that is to be associated to this NS instance is different from the one used before, the NFVO shall reject the request. Only new versions of the same NSD can be associated to an existing NS instance. This data type shall comply with the provisions defined in Table 6.5.3.34-1. | assocNewNsdVersionData |
| changeExtVnfConnectivityData <i>optional</i> | Specifies the new external connectivity data of the VNF instance to be changed. It shall be present only if updateType = "CHANGE_EXTERNAL_VNF_CONNECTIVITY". | < changeExtVnfConnectivityData > array |

| Name | Description | Schema |
|--|--|--|
| changeNsFlavourData <i>optional</i> | This type specifies an existing NS instance for which the DF needs to be changed. This specifies the new DF, the instantiationLevel of the new DF that may be used and the additional parameters as input for the flavour change. It shall comply with the provisions defined in Table 6.5.3.39-1. | changeNsFlavourData |
| changeVnfFlavourData <i>optional</i> | Identifies the new DF of the VNF instance to be changed to. It shall be present only if updateType = "CHANGE_VNF_DF". | < changeVnfFlavourData > array |
| instantiateVnfData <i>optional</i> | Identifies the new VNF to be instantiated. It can be used e.g. for the bottom-up NS creation. It shall be present only if updateType = "INSTANTIATE_VNF". | < instantiateVnfData > array |
| modifyPnfData <i>optional</i> | Specifies the PNF to be modified in the NS instance. It shall be present only if updateType = "MODIFY_PNF". | < modifyPnfData > array |
| modifyVnfInfoData <i>optional</i> | Identifies the VNF information parameters and/or the configurable properties of VNF instance to be modified. It shall be present only if updateType = "MODIFY_VNF_INFORMATION". | < modifyVnfInfoData > array |
| moveVnfInstanceData <i>optional</i> | Specify existing VNF instance to be moved from one NS instance to another NS instance. It shall be present only if updateType = MOVE_VNF". | < moveVnfInstanceData > array |
| operateVnfData <i>optional</i> | Identifies the state of the VNF instance to be changed. It shall be present only if updateType = "OPERATE_VNF". | < operateVnfData > array |
| removeNestedNsId <i>optional</i> | The identifier of an existing nested NS instance to be removed from the NS instance. It shall be present only if updateType = "REMOVE_NESTED_NS". | < string > array |
| removePnfId <i>optional</i> | Identifier of the PNF to be deleted from the NS instance. It shall be present only if updateType = "REMOVE_PNF". | < string > array |
| removeSapId <i>optional</i> | The identifier an existing SAP to be removed from the NS instance. It shall be present only if updateType = "REMOVE_SAP." | < string > array |

| Name | Description | Schema |
|---|---|---|
| removeVnfInstanceId <i>optional</i> | Identifies an existing VNF instance to be removed from the NS instance. It contains the identifier(s) of the VNF instances to be removed. It shall be present only if updateType = "REMOVE_VNF." Note: If a VNF instance is removed from a NS and this NS was the last one for which this VNF instance was a part, the VNF instance is terminated by the NFVO. | < string > array |
| removeVnffgid <i>optional</i> | Identifier of an existing VNFFG to be removed from the NS Instance. It shall be present only if updateType = "REMOVE_VNFFG". | < string > array |
| updateTime <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| updateType <i>required</i> | The type of update. It determines also which one of the following parameters is present in the operation. Possible values include: * ADD_VNF: Adding existing VNF instance(s) * REMOVE_VNF: Removing VNF instance(s) * INSTANTIATE_VNF: Instantiating new VNF(s) * CHANGE_VNF_DF: Changing VNF DF * OPERATE_VNF: Changing VNF state, * MODIFY_VNF_INFORMATION: Modifying VNF information and/or the configurable properties of VNF instance(s) * CHANGE_EXTERNAL_VNF_CONNECTIVITY: Changing the external connectivity of VNF instance(s) * ADD_SAP: Adding SAP(s) * REMOVE_SAP: Removing SAP(s) * ADD_NESTED_NS: Adding existing NS instance(s) as nested NS(s) * REMOVE_NESTED_NS: Removing existing nested NS instance(s) * ASSOC_NEW_NSD_VERSION: Associating a new NSD version to the NS instance * MOVE_VNF: Moving VNF instance(s) from one origin NS instance to another target NS instance * ADD_VNFFG: Adding VNFFG(s) * REMOVE_VNFFG: Removing VNFFG(s) * UPDATE_VNFFG: Updating VNFFG(s) * CHANGE_NS_DF: Changing NS DF * ADD_PNF: Adding PNF * MODIFY_PNF: Modifying PNF * REMOVE_PNF: Removing PNF | enum (ADD_VNF, REMOVE_VNF, INSTANTIATE_VNF, CHANGE_VNF_DF, OPERATE_VNF, MODIFY_VNF_INFORMATION, CHANGE_EXTERNAL_VNF_CONNECTIVITY, REMOVE_SAP, ADD_NESTED_NS, REMOVE_NESTED_NS, ASSOC_NEW_NSD_VERSION, MOVE_VNF, ADD_VNFFG, REMOVE_VNFFG, UPDATE_VNFFG, CHANGE_NS_DF, ADD_PNF, MODIFY_PNF, REMOVE_PNF) |
| updateVnffg <i>optional</i> | Specify the new VNFFG Information data to be updated for a VNFFG of the NS Instance. It shall be present only if updateType = "UPDATE_VNFFG". | < updateVnffg > array |

addPnfData

| Name | Description | Schema |
|--|--|----------------------------------|
| cpData <i>optional</i> | Address assigned for the PNF external CP(s). | < cpData > array |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>required</i> | Name of the PNF | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpData

| Name | Description | Schema |
|--|--|--|
| cpInstanceI16 <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>required</i> | Address assigned for this CP. | < cpProtocolData > array |
| cpdId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

addSap

| Name | Description | Schema |
|---|---|--|
| description <i>required</i> | Human readable description for the SAP. | string |
| sapName <i>required</i> | Human readable name for the SAP. | string |
| sapProtocolData <i>optional</i> | Parameters for configuring the network protocols on the SAP. | < sapProtocolData > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|--|--------------|
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

addVnfInstance

| Name | Description | Schema |
|---|--|--------|
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

addVnffg

| Name | Description | Schema |
|--|--|--------|
| description <i>required</i> | Human readable description for the VNFFG. | string |
| targetNsInstanceId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| vnffgName <i>required</i> | Human readable name for the VNFFG. | string |

assocNewNsdVersionData

| Name | Description | Schema |
|------------------------------------|--|---------|
| newNsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| sync <i>optional</i> | Specify whether the NS instance shall be automatically synchronized to the new NSD by the NFVO (in case of true value) or the NFVO shall not do any action (in case of a false value) and wait for further guidance from OSS/BSS (i.e. waiting for OSS/BSS to issue NS lifecycle management operation to explicitly add/remove VNFs and modify information of VNF instances according to the new NSD). The synchronization to the new NSD means e.g. instantiating/adding those VNFs whose VNFD is referenced by the new NSD version but not referenced by the old one, terminating/removing those VNFs whose VNFD is referenced by the old NSD version but not referenced by the new NSD version, modifying information of VNF instances to the new applicable VNFD provided in the new NSD version. A cardinality of 0 indicates that synchronization shall not be done. | boolean |

changeExtVnfConnectivityData

| Name | Description | Schema |
|--|---|---|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| extVirtualLink <i>required</i> | Information about external VNs to change (e.g. connect the VNF to). | < extVirtualLink > array |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

extVirtualLink

| Name | Description | Schema |
|--|--|---|
| extCps <i>required</i> | External CPs of the VNF to be connected to this external VL. | < extCps > array |
| extLinkPorts <i>optional</i> | Externally provided link ports to be used to connect external connection points to this external VL. | < extLinkPorts > array |
| extVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

extCps

| Name | Description | Schema |
|------------------------------------|---|--------------------|
| cpConfig <i>optional</i> | List of instance data that need to be configured on the CP instances created from the respective CPD. | < cpConfig > array |
| cpId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

cpConfig

| Name | Description | Schema |
|--|--|--------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the link port that connects the CP to a VL. The following conditions apply to the attributes "linkPortId" and "cpProtocolData": * The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. * At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. * If the "linkPortId" attribute is absent, the VNFM shall create a link port. * If the "cpProtocolData" attribute is absent, the "linkPortId" attribute shall be provided referencing a pre-created link port, and the VNFM can use means outside the scope of the present document to obtain the pre-configured address information for the connection point from the resource representing the link port. * If both "cpProtocolData" and "linkportId" are provided, the API consumer shall ensure that the cpProtocolData can be used with the pre-created link port referenced by "linkPortId". | < cpProtocolData > array |
| linkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|----------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |

| Name | Description | Schema |
|---|---|----------------------------|
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

changeNsFlavourData

| Name | Description | Schema |
|--|--|--------|
| instantiationLevelId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| newNsFlavourId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

changeVnfFlavourData

| Name | Description | Schema |
|--|---|--|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| extManagedVirtualLinks <i>optional</i> | information about internal VLs that are managed by NFVO. | < extManagedVirtualLinks > array |
| extVirtualLinks <i>optional</i> | Information about external VLs to connect the VNF to. | < extVirtualLinks > array |
| instantiationLevelId <i>optional</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| newFlavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

extManagedVirtualLinks

| Name | Description | Schema |
|---|--|--------|
| extManagedVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| virtualLinkId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

extVirtualLinks

| Name | Description | Schema |
|--|--|--|
| extCps <i>required</i> | External CPs of the VNF to be connected to this external VL. | < extCps > array |
| extLinkPorts <i>optional</i> | Externally provided link ports to be used to connect external connection points to this external VL. | < extLinkPorts > array |
| extVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

extCps

| Name | Description | Schema |
|------------------------------------|---|--------------------|
| cpConfig <i>optional</i> | List of instance data that need to be configured on the CP instances created from the respective CPD. | < cpConfig > array |
| cpId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

cpConfig

| Name | Description | Schema |
|--|--|--------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the link port that connects the CP to a VL. The following conditions apply to the attributes "linkPortId" and "cpProtocolData": * The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. * At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. * If the "linkPortId" attribute is absent, the VNFM shall create a link port. * If the "cpProtocolData" attribute is absent, the "linkPortId" attribute shall be provided referencing a pre-created link port, and the VNFM can use means outside the scope of the present document to obtain the pre-configured address information for the connection point from the resource representing the link port. * If both "cpProtocolData" and "linkportId" are provided, the API consumer shall ensure that the cpProtocolData can be used with the pre-created link port referenced by "linkPortId". | < cpProtocolData > array |
| linkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|----------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |

| Name | Description | Schema |
|---|---|----------------------------|
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

instantiateVnfData

| Name | Description | Schema |
|---|---|--|
| additionalParams <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| extManagedVirtualLinks <i>optional</i> | Information about internal VLs that are managed by other entities than the VNFM. | < extManagedVirtualLinks > array |
| extVirtualLinks <i>optional</i> | Information about external VLs to connect the VNF to. | < extVirtualLinks > array |
| localizationLanguage <i>optional</i> | Localization language of the VNF to be instantiated. The value shall comply with the format defined in IETF RFC 5646 [16]. | string |
| vnfFlavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| vnfInstanceDescription <i>optional</i> | Human-readable description of the VNF instance to be created. | string |
| vnfInstanceName <i>optional</i> | Human-readable name of the VNF instance to be created. | string |
| vnfInstantiationLevelId <i>optional</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

extManagedVirtualLinks

| Name | Description | Schema |
|---|--|--------|
| extManagedVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| virtualLinkId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

extVirtualLinks

| Name | Description | Schema |
|--|--|--|
| extCps <i>required</i> | External CPs of the VNF to be connected to this external VL. | < extCps > array |
| extLinkPorts <i>optional</i> | Externally provided link ports to be used to connect external connection points to this external VL. | < extLinkPorts > array |
| extVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

extCps

| Name | Description | Schema |
|------------------------------------|---|--------------------|
| cpConfig <i>optional</i> | List of instance data that need to be configured on the CP instances created from the respective CPD. | < cpConfig > array |
| cpId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

cpConfig

| Name | Description | Schema |
|--|--|--------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the link port that connects the CP to a VL. The following conditions apply to the attributes "linkPortId" and "cpProtocolData": * The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. * At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. * If the "linkPortId" attribute is absent, the VNFM shall create a link port. * If the "cpProtocolData" attribute is absent, the "linkPortId" attribute shall be provided referencing a pre-created link port, and the VNFM can use means outside the scope of the present document to obtain the pre-configured address information for the connection point from the resource representing the link port. * If both "cpProtocolData" and "linkportId" are provided, the API consumer shall ensure that the cpProtocolData can be used with the pre-created link port referenced by "linkPortId". | < cpProtocolData > array |
| linkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|----------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |

| Name | Description | Schema |
|---|---|-------------------------|
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|---------------------------------------|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

modifyPnfData

| Name | Description | Schema |
|-----------------------------------|--|----------------------------------|
| cpData <i>optional</i> | Address assigned for the PNF external CP(s). | < cpData > array |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |

cpData

| Name | Description | Schema |
|--|--|--|
| cpInstanceI16 <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>required</i> | Address assigned for this CP. | < cpProtocolData > array |
| cpdId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|---------------------------------------|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|--|--------------|
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

modifyVnfInfoData

| Name | Description | Schema |
|---|---|--------|
| Extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| Metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | New value of the "vnfInstanceDescription" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfInstanceName <i>optional</i> | New value of the "vnfInstanceName" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfPkgId <i>optional</i> | An identifier with the intention of being globally unique. | string |

moveVnfInstanceData

| Name | Description | Schema |
|--|--|------------------|
| targetNsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfInstanceId <i>optional</i> | Specify the VNF instance that is moved. | < string > array |

operateVnfData

| Name | Description | Schema |
|---|--|---------------------------|
| changeStateTo <i>required</i> | STARTED - The VNF instance is up and running. STOPPED - The VNF instance has been shut down. | enum (STARTED, STOPPED) |
| gracefulStopTimeout <i>optional</i> | The time interval (in seconds) to wait for the VNF to be taken out of service during graceful stop, before stopping the VNF. | integer |
| stopType <i>optional</i> | <ul style="list-style-type: none"> • FORCEFUL: The VNFM will stop the VNF immediately after accepting the request. • GRACEFUL: The VNFM will first arrange to take the VNF out of service after accepting the request. Once that operation is successful or once the timer value specified in the "gracefulStopTimeout" attribute expires, the VNFM will stop the VNF. | enum (FORCEFUL, GRACEFUL) |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

updateVnffg

| Name | Description | Schema |
|---------------------------------------|--|------------------|
| nfp <i>optional</i> | Indicate the desired new NFP(s) for a given VNFFG after the operations of addition/removal of NS components (e.g. VNFs, VLs, etc.) have been completed, or indicate the updated or newly created NFP classification and selection rule which applied to an existing NFP. | < nfp > array |
| nfpInfoId <i>optional</i> | Identifier(s) of the NFP to be deleted from a given VNFFG. | < string > array |
| vnffgInfoId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |

nfp

| Name | Description | Schema |
|---------------------------------------|---|--------|
| description <i>optional</i> | Human readable description for the NFP. It shall be present for the new NFP, and it may be present otherwise. | string |
| nfpInfoId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |

| Name | Description | Schema |
|--------------------------------------|--|---|
| nfpName <i>optional</i> | Human readable name for the NFP. It shall be present for the new NFP, and it may be present otherwise. | string |
| nfpRule <i>optional</i> | The NfpRule data type is an expression of the conditions that shall be met in order for the NFP to be applicable to the packet. The condition acts as a flow classifier and it is met only if all the values expressed in the condition are matched by those in the packet. It shall comply with the provisions defined in Table 6.5.3.40-1. | nfpRule |
| nsCpHandle <i>optional</i> | Identifier(s) of the CPs and SAPs which the NFP passes by. Cardinality can be 0 if only updated or newly created NFP classification and selection rule which applied to an existing NFP is provided. | < nsCpHandle > array |

nfpRule

| Name | Description | Schema |
|--|---|--------------------------------------|
| destinationIpAddressPrefix <i>optional</i> | An IPV4 or IPV6 address range in CIDR format. For IPV4 address range, refer to IETF RFC 4632 [12]. For IPV6 address range, refer to IETF RFC 4291 [11]. | string (CIDR) |
| destinationPortRange <i>optional</i> | The PortRange data type provides the lower and upper bounds of a range of Internet ports. It shall comply with the provisions defined in Table 6.5.3.42-1. | destinationPortRange |
| dscp <i>optional</i> | For IPv4 [7] a string of "0" and "1" digits that corresponds to the 6-bit Differentiated Services Code Point (DSCP) field of the IP header. For IPv6 [28] a string of "0" and "1" digits that corresponds to the 6 differentiated services bits of the traffic class header field | string |
| etherDestinationAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| etherSourceAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| etherType <i>optional</i> | Human readable description for the VNFFG. | enum (IPV4, IPV6) |

| Name | Description | Schema |
|---|---|---|
| extendedCriteria <i>optional</i> | Indicates values of specific bits in a frame. | < extendedCriteria > array |
| protocol <i>optional</i> | Indicates the L4 protocol, For IPv4 [7] this corresponds to the field called "Protocol" to identify the next level protocol. For IPv6 [28] this corresponds to the field is called the "Next Header" field. Permitted values: Any keyword defined in the IANA protocol registry [1], e.g.: TCP UDP ICMP | enum (TCP, UDP, ICMP) |
| sourceIpAddressPrefix <i>optional</i> | An IPV4 or IPV6 address range in CIDR format. For IPV4 address range, refer to IETF RFC 4632 [12]. For IPV6 address range, refer to IETF RFC 4291 [11]. | string (CIDR) |
| sourcePortRange <i>optional</i> | The PortRange data type provides the lower and upper bounds of a range of Internet ports. It shall comply with the provisions defined in Table 6.5.3.42-1. | sourcePortRange |
| vlanTag <i>optional</i> | Indicates a VLAN identifier in an IEEE 802.1Q-2014 tag [6] Multiple tags can be included for QinQ stacking. See note. | < string > array |

destinationPortRange

| Name | Description | Schema |
|-------------------------------------|---|---------|
| lowerPort <i>required</i> | Identifies the lower bound of the port range. upperPort Integer Minimum value : 0 | integer |
| upperPort <i>required</i> | Identifies the upper bound of the port range. Minimum value : 0 | integer |

extendedCriteria

| Name | Description | Schema |
|---|--|---------|
| length <i>required</i> | Indicates the number of bits to be matched. | integer |
| startingPoint <i>required</i> | Indicates the offset between the last bit of the source mac address and the first bit of the sequence of bits to be matched. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------|
| value <i>required</i> | Provide the sequence of bit values to be matched. | string |

sourcePortRange

| Name | Description | Schema |
|-------------------------------------|--|---------|
| lowerPort <i>required</i> | Identifies the lower bound of the port range. upperPort Integer Minimum value : 0 | integer |
| upperPort <i>required</i> | Identifies the upper bound of the port range. Minimum value : 0 | integer |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 202 | <p>202 Accepted The request was accepted for processing, but the processing has not been completed. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "NS lifecycle operation occurrence" resource corresponding to the operation.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. Location (string (url)) : The resource URI of the created NS instance. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 202 |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. Specifically in case of this task resource, the response code 404 shall also returned if the task is not supported for the NS instance represented by the parent resource, which means that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>Conflict The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 202

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| additionalAffinityOrAntiAffinityRule <i>optional</i> | Information on the additional affinity or anti-affinity rule from NS instantiation operation. Shall not conflict with rules already specified in the NSD. | < additionalAffinityOrAntiAffinityRule > array |

| Name | Description | Schema |
|---|---|---|
| flavourId <i>optional</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nestedNsInstanceId <i>optional</i> | Identifier of the nested NS(s) of the NS instance. | < string > array |
| nsInstanceDescription <i>required</i> | Human readable description of the NS instance. | string |
| nsInstanceName <i>required</i> | Human readable name of the NS instance. | string |
| nsScaleStatus <i>optional</i> | Status of each NS scaling aspect declared in the applicable DF, how "big" the NS instance has been scaled w.r.t. that aspect. This attribute shall be present if the nsState attribute value is INSTANTIATED. | < nsScaleStatus > array |
| nsState <i>required</i> | The state of the NS instance. Permitted values: NOT_INSTANTIATED: The NS instance is terminated or not instantiated. INSTANTIATED: The NS instance is instantiated. | enum (NOT_INSTANTIATED, INSTANTIATED) |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfInfo <i>optional</i> | Information on the PNF(s) that are part of the NS instance. | < pnfInfo > array |
| sapInfo <i>optional</i> | Information on the SAP(s) of the NS instance. | < sapInfo > array |
| virtualLinkInfo <i>optional</i> | Information on the VL(s) of the NS instance. This attribute shall be present if the nsState attribute value is INSTANTIATED and if the NS instance has specified connectivity. | < virtualLinkInfo > array |

| Name | Description | Schema |
|---------------------------------------|---|--|
| vnfInstance <i>optional</i> | Information on constituent VNF(s) of the NS instance. | < vnfInstance > array |
| vnffgInfo <i>optional</i> | Information on the VNFFG(s) of the NS instance. | < vnffgInfo > array |

links

| Name | Description | Schema |
|---|--|--|
| heal <i>optional</i> | This type represents a link to a resource. | heal |
| instantiate <i>optional</i> | This type represents a link to a resource. | instantiate |
| nestedNsInstances <i>optional</i> | Links to resources related to this notification. | < nestedNsInstances > array |
| scale <i>optional</i> | This type represents a link to a resource. | scale |
| self <i>required</i> | This type represents a link to a resource. | self |
| terminate <i>optional</i> | This type represents a link to a resource. | terminate |
| update <i>optional</i> | This type represents a link to a resource. | update |

heal

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

instantiate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nestedNsInstances

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

scale

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

terminate

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

update

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

additionalAffinityOrAntiAffinityRule

| Name | Description | Schema |
|--|--|--------------------------------|
| affinityOrAntiAffinity <i>required</i> | The type of the constraint. Permitted values: AFFINITY, ANTI_AFFINITY. | enum (AFFINITY, ANTI_AFFINITY) |

| Name | Description | Schema |
|---|---|--|
| scope <i>required</i> | Specifies the scope of the rule where the placement constraint applies. Permitted values: NFVI_POP ZONE, ZONE_GROUP, NFVI_NODE. | enum (NFVI_POP, ZONE, ZONE_GROUP, NFVI_NODE) |
| vnfInstanceId <i>optional</i> | Reference to the existing VNF instance as the subject of the affinity or anti-affinity rule. The existing VNF instance is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfProfileId <i>optional</i> | Reference to a vnfProfile defined in the NSD. At least one VnfProfile which is used to instantiate VNF for the NS to be instantiated as the subject of the affinity or anti-affinity rule shall be present. When the VnfProfile which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VnfProfile presents is not necessary as a part of the NS to be instantiated. | < string > array |
| vnfdId <i>optional</i> | Reference to a VNFD. When the VNFD which is not used to instantiate VNF, it presents all VNF instances of this type as the subjects of the affinity or anti-affinity rule. The VNF instance which the VNFD presents is not necessary as a part of the NS to be instantiated. | < string > array |

nsScaleStatus

| Name | Description | Schema |
|---|---|--------|
| nsScaleLevelId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsScalingAspectId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

pnfInfo

| Name | Description | Schema |
|----------------------------------|---|------------------------|
| cpInfo <i>optional</i> | This type represents the information about the external CP of the PNF. It shall comply with the provisions defined in Table 6.5.3.17-1. | cpInfo |

| Name | Description | Schema |
|--|--|--------|
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfdInfoId <i>required</i> | An identifier with the intention of being globally unique. | string |

cpInfo

| Name | Description | Schema |
|--|--|---|
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | string |
| cpProtocolData <i>optional</i> | Parameters for configuring the network protocols on the CP. | < cpProtocolData > array |
| cpdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

cpProtocolData

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents network address data for IP over Ethernet. | ipOverEthernet |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). Permitted values: IP_OVER_ETHERNET. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | List of IP addresses to assign to the CP instance. Each entry represents IP address data for fixed or dynamic IP address assignment per subnet. If this attribute is not present, no IP address shall be assigned. | < ipAddresses > array |
| macAddress <i>optional</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |

ipAddresses

| Name | Description | Schema |
|---|---|------------------------------|
| addressRange <i>optional</i> | An IP address range to be used, e.g. in case of egress connections. In case this attribute is present, IP addresses from the range will be used. | addressRange |
| fixedAddresses <i>optional</i> | Fixed addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | < string (IP) > array |
| numDynamicAddresses <i>optional</i> | Number of dynamic addresses to assign (from the subnet defined by "subnetId" if provided). Exactly one of "fixedAddresses", "numDynamicAddresses" or "ipAddressRange" shall be present. | integer |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

sapInfo

| Name | Description | Schema |
|---|---|--|
| description <i>optional</i> | Human readable description for the SAP instance. | string |
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| sapName <i>required</i> | Human readable name for the SAP instance. | string |
| sapProtocolInfo <i>required</i> | Network protocol information for this SAP. | < sapProtocolInfo > array |
| sapId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

sapProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |

| Name | Description | Schema |
|---------------------------------------|---|--|
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

virtualLinkInfo

| Name | Description | Schema |
|---|---|--|
| id <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| linkPort <i>optional</i> | Link ports of the VL instance. Cardinality of zero indicates that no port has yet been created for the VL instance. | < linkPort > array |
| nsVirtualLinkDescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| resourceHandle <i>optional</i> | Identifier(s) of the virtualised network resource(s) realizing the VL instance. See note. | < resourceHandle > array |

linkPort

| Name | Description | Schema |
|--------------------------------------|---|--------------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifier of the CP/SAP instance to be connected to this link port. The value refers to a vnfExtCpInfo item in the VnfInstance, or a pnfExtCpInfo item in the PnfInfo, or a sapInfo item in the NS instance. There shall be at most one link port associated with any connection point instance. | < nsCpHandle > array |

| Name | Description | Schema |
|--|--|--------------------------------|
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfInstance

| Name | Description | Schema |
|---|---|--|
| extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| instantiatedVnfInfo <i>optional</i> | Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED. | instantiatedVnfInfo |
| instantiationState <i>required</i> | The instantiation state of the VNF. | enum (NOT_INSTANTIATED, INSTANTIATED) |

| Name | Description | Schema |
|---|---|---------------|
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfInstanceName <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfPkgId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfProductName <i>required</i> | Name to identify the VNF Product. The value is copied from the VNFD. | string |
| vnfProvider <i>required</i> | Provider of the VNF and the VNFD. The value is copied from the VNFD. | string |
| vnfSoftwareVersion <i>required</i> | A Version. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>required</i> | A Version. | string |

instantiatedVnfInfo

| Name | Description | Schema |
|--|---|--|
| extCpInfo <i>optional</i> | Information about the external CPs exposed by the VNF instance. | < extCpInfo > array |
| extManagedVirtualLinkInfo <i>optional</i> | External virtual links the VNF instance is connected to. | < extManagedVirtualLinkInfo > array |
| extVirtualLinkInfo <i>optional</i> | Information about the external VLS the VNF instance is connected to. | < extVirtualLinkInfo > array |
| flavourId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| localizationLanguage <i>optional</i> | Information about localization language of the VNF (includes e.g. strings in the VNFD). The localization languages supported by a VNF can be declared in the VNFD, and localization language selection can take place at instantiation time. The value shall comply with the format defined in IETF RFC 5646. | string |
| monitoringParameters <i>optional</i> | Active monitoring parameters. | < monitoringParameters > array |
| scaleStatus <i>optional</i> | Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect. | < scaleStatus > array |
| virtualLinkResourceInfo <i>optional</i> | Information about the virtualised network resources used by the VLS of the VNF instance. | < virtualLinkResourceInfo > array |
| virtualStorageResourceInfo <i>optional</i> | Information on the virtualised storage resource(s) used as storage for the VNF instance. | < virtualStorageResourceInfo > array |
| vnfState <i>required</i> | | enum (STARTED, STOPPED) |
| vnfcResourceInfo <i>optional</i> | Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance. | < vnfcResourceInfo > array |

extCpInfo

| Name | Description | Schema |
|--|---|---|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| extLinkPortId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|--|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

extManagedVirtualLinkInfo

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|---|
| networkResource <i>optional</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

extVirtualLinkInfo

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|---|--------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------------------------------|
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

monitoringParameters

| Name | Description | Schema |
|-------------------------------------|--|--------|
| id <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| timeStamp <i>required</i> | Represents the point in time when the measurement has been performed, as known to the VNFM. Should be formatted according to ETF RFC 3339. | string |
| value <i>required</i> | Value of the monitoring parameter known to the VNFM (e.g. obtained for auto-scaling purposes). The type of the "value" attribute (i.e. scalar, structure (Object in JSON), or array (of scalars, arrays or structures/Objects)) is assumed to be defined in an external measurement specification. | object |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| scaleLevel <i>required</i> | Indicates the scale level. The minimum value shall be 0 and the maximum value shall be \leq maxScaleLevel as described in the VNFD. | integer |

virtualLinkResourceInfo

| Name | Description | Schema |
|---|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| networkResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | networkResource |

| Name | Description | Schema |
|--|---|---|
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfLinkPorts <i>optional</i> | Links ports of this VL. Shall be present when the linkPort is used for external connectivity by the VNF (refer to VnfLinkPortInfo). May be present otherwise. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

networkResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfLinkPorts

| Name | Description | Schema |
|--|--|--------------------------------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

virtualStorageResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | storageResource |
| virtualStorageDescId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

storageResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcResourceInfo

| Name | Description | Schema |
|--|---|---------------------------------|
| computeResource <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | computeResource |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| reservationId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| storageResourceIds <i>optional</i> | References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance. | < string > array |
| vduId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |

| Name | Description | Schema |
|--------------------------------------|--|--------------------------------------|
| vnfcCpInfo <i>optional</i> | CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise. | < vnfcCpInfo > array |

computeResource

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

vnfcCpInfo

| Name | Description | Schema |
|--|---|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. | < cpProtocolInfo > array |
| cpdId <i>required</i> | Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD. | string |
| id <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfExtCpId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfLinkPortId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

cpProtocolInfo

| Name | Description | Schema |
|--|---|--------------------------------|
| ipOverEthernet <i>required</i> | This type represents information about a network address that has been assigned. It shall comply with the provisions defined in Table 6.5.3.18-1. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET See note. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|--|---|--|
| addressRange <i>required</i> | An IP address range used, e.g. in case of egress connections. See note. | addressRange |
| addresses <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| ipAddresses <i>required</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. | < ipAddresses > array |
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| macAddress <i>required</i> | A MAC address. Representation: string that consists of groups of two hexadecimal digits, separated by hyphens or colons. | string (MAC) |
| maxAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

| Name | Description | Schema |
|--------------------------------------|---|-----------------|
| minAddress <i>optional</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| subnetId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>optional</i> | The type of the IP addresses | enum (PV4, PV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

ipAddresses

| Name | Description | Schema |
|--|---|------------------------------|
| addressRange <i>optional</i> | An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present. | addressRange |
| addresses <i>optional</i> | Fixed addresses assigned (from the subnet defined by "subnetId" if provided). | < string (IP) > array |

| Name | Description | Schema |
|-------------------------------------|--|-------------------|
| isDynamic <i>optional</i> | Indicates whether this set of addresses was assigned dynamically (true) or based on address information provided as input from the API consumer (false). Shall be present if "addresses" is present and shall be absent otherwise. | boolean |
| subnetId <i>optional</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| type <i>required</i> | The type of the IP addresses. Permitted values: IPV4, IPV6. | enum (IPV4, IPV6) |

addressRange

| Name | Description | Schema |
|--------------------------------------|---|-------------|
| maxAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |
| minAddress <i>required</i> | An IPV4 or IPV6 address. Representation: In case of an IPV4 address, string that consists of four decimal integers separated by dots, each integer ranging from 0 to 255. In case of an IPV6 address, string that consists of groups of zero to four hexadecimal digits, separated by colons. | string (IP) |

vnffgInfo

| Name | Description | Schema |
|--|--|---|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsCpHandle <i>optional</i> | Identifiers of the CP instances attached to the constituent VNFs and PNFs or the SAP instances of the VNFFG. See note. | < nsCpHandle > array |
| nsVirtualLink InfoId <i>optional</i> | Identifier(s) of the constituent VL instance(s) of this VNFFG instance. | < string > array |

| Name | Description | Schema |
|---|---|------------------|
| pnfdInfoId <i>optional</i> | Identifier(s) of the constituent PNF instance(s) of this VNFFG instance. | < string > array |
| vnfInstanceId <i>required</i> | Identifier(s) of the constituent VNF instance(s) of this VNFFG instance. | < string > array |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

nsCpHandle

| Name | Description | Schema |
|--|---|--------|
| nsInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| nsSapInstanceId <i>optional</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| pnfExtCpInstanceId <i>optional</i> | Identifier of the CP in the scope of the PNF. | string |
| pnfInfoId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfExtCpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| vnfInstanceId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |

| Name | Description | Schema |
|----------------------------------|---|--------------|
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Query multiple NS LCM operation occurrences.

```
GET /ns_lcm_op_occs
```

Description

Get Operation Status. The client can use this method to query status information about multiple NS lifecycle management operation occurrences. This method shall follow the provisions specified in the Tables 6.4.9.3.2-1 and 6.4.9.3.2-2 for URI query parameters, request and response data structures, and response codes.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |

| Type | Name | Description | Schema |
|-------|--|---|--------|
| Query | exclude_defaults <i>optional</i> | Indicates to exclude the following complex attributes from the response. See clause 4.3.3 for details. The NFVO shall support this parameter. The following attributes shall be excluded from the NsLcmOpOcc structure in the response body if this parameter is provided: - operationParams - changedVnfInfo - error - resourceChanges | string |
| Query | exclude_fields <i>optional</i> | Complex attributes to be excluded from the response. See clause 4.3.3 for details. The NFVO should support this parameter. | string |
| Query | fields <i>optional</i> | Complex attributes to be included into the response. See clause 4.3.3 for details. The NFVO should support this parameter. | string |
| Query | filter <i>optional</i> | Attribute-based filtering parameters according to clause 4.3.2. The NFVO shall support receiving filtering parameters as part of the URI query string. The OSS/BSS may supply an attribute filter. All attribute names that appear in the NsLcmOpOcc and in data types referenced from it shall be supported in filtering parameters. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|---|
| 200 | <p>200 OK Status information for zero or more NS lifecycle management operation occurrences was queried successfully. The response body shall contain representations of zero or more NS instances, as defined in clause 5.5.2.13.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | < Response 200 > array |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 200

| Name | Description | Schema |
|--------------------------------------|---|----------------------------|
| NsLcmOpOcc <i>optional</i> | This type represents a request a NS lifecycle operation occurrence. It shall comply with the provisions defined in Table 6.5.2.3-1. | NsLcmOpOcc |

NsLcmOpOcc

| Name | Description | Schema |
|--------------------------------------|--|---------------------------|
| _links <i>required</i> | Links to resources related to this resource. | _links |
| cancelMode <i>optional</i> | Cancellation mode. The NFVO shall not start any new VNF lifecycle management and resource management operation, and shall wait for the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, to finish execution or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. The NFVO shall not start any new VNF lifecycle management and resource management operation, shall cancel the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, and shall wait for the cancellation to finish or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. | enum (GRACEFUL, FORCEFUL) |
| error <i>optional</i> | The definition of the general "ProblemDetails" data structure from IETF RFC 7807 [19] is reproduced in this structure. Compared to the general framework defined in IETF RFC 7807 [19], the "status" and "detail" attributes are mandated to be included by the present document, to ensure that the response contains additional textual information about an error. IETF RFC 7807 [19] foresees extensibility of the "ProblemDetails" type. It is possible that particular APIs in the present document, or particular implementations, define extensions to define additional attributes that provide more information about the error. The description column only provides some explanation of the meaning to Facilitate understanding of the design. For a full description, see IETF RFC 7807 [19]. | error |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|---|
| isAutomaticInvocation <i>required</i> | Set to true if this NS LCM operation occurrence has been automatically triggered by the NFVO. This occurs in the case of auto-scaling, auto-healing and when a nested NS is modified as a result of an operation on its composite NS. Set to false otherwise. | boolean |
| isCancelPending <i>required</i> | If the LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state and the operation is being cancelled, this attribute shall be set to true. Otherwise, it shall be set to false. | boolean |
| lcmOperationType <i>required</i> | The enumeration NsLcmOpType represents those lifecycle operations that trigger a NS lifecycle management operation occurrence notification. Value Description —— ——— INSTANTIATE Represents the "Instantiate NS" LCM operation. SCALE Represents the "Scale NS" LCM operation. UPDATE Represents the "Update NS" LCM operation. TERMINATE Represents the "Terminate NS" LCM operation. HEAL Represents the "Heal NS" LCM operation. | enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| operationParams <i>required</i> | Input parameters of the LCM operation. This attribute shall be formatted according to the request data type of the related LCM operation. The following mapping between lcmOperationType and the data type of this attribute shall apply: - INSTANTIATE: InstantiateNsRequest - SCALE: ScaleNsRequest - UPDATE: UpdateNsRequest - HEAL: HealNsRequest - TERMINATE: TerminateNsRequest | enum (INSTANTIATE, SCALE, UPDATE, HEAL, TERMINATE) |

| Name | Description | Schema |
|--|--|--|
| operationState <i>required</i> | The enumeration NsLcmOperationStateType shall comply with the provisions defined in Table 6.5.4.4-1. Value Description — —— PROCESSING The LCM operation is currently in execution. COMPLETED The LCM operation has been completed successfully. PARTIALLY_COMPLETED The LCM operation has been partially completed with acceptable errors. FAILED_TEMP The LCM operation has failed and execution has stopped, but the execution of the operation is not considered to be closed. FAILED The LCM operation has failed and it cannot be retried or rolled back, as it is determined that such action won't succeed. ROLLING_BACK The LCM operation is currently being rolled back. ROLLED_BACK The LCM operation has been successfully rolled back, i.e. The state of the VNF prior to the original operation invocation has been restored as closely as possible. | enum (PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) |
| resourceChanges <i>optional</i> | This attribute contains information about the cumulative changes to virtualised resources that were performed so far by the LCM operation since its start, if applicable | resourceChanges |
| startTime <i>required</i> | Date-time of the start of the operation. | string (date-time) |
| stateEnteredTime <i>required</i> | Date-time when the current state was entered. | string (date-time) |

links

| Name | Description | Schema |
|--------------------------------------|--|----------------------------|
| cancel <i>optional</i> | This type represents a link to a resource. | cancel |
| continue <i>optional</i> | This type represents a link to a resource. | continue |
| fail <i>optional</i> | This type represents a link to a resource. | fail |
| nsInstance <i>required</i> | This type represents a link to a resource. | nsInstance |

| Name | Description | Schema |
|------------------------------------|--|--------------------------|
| retry <i>optional</i> | This type represents a link to a resource. | retry |
| rollback <i>optional</i> | This type represents a link to a resource. | rollback |
| self <i>required</i> | This type represents a link to a resource. | self |

cancel

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

continue

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

fail

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nsInstance

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

retry

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

rollback

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

error

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

resourceChanges

| Name | Description | Schema |
|--|---|--|
| affectedNss <i>optional</i> | Information about the nested NS instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note. | < affectedNss > array |
| affectedPnfs <i>optional</i> | Information about the PNF instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedPnfs > array |
| affectedSaps <i>optional</i> | Information about the nested NS instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note. | < affectedSaps > array |
| affectedVls <i>optional</i> | Information about the VL instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedVls > array |
| affectedVnffgs <i>optional</i> | Information about the VNFFG instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note | < affectedVnffgs > array |
| affectedVnfs <i>optional</i> | Information about the VNF instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedVnfs > array |

affectedNss

| Name | Description | Schema |
|--|---|---|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED - PARTIALLY_COMPLETED | enum (COMPLETED, ROLLED_BACK, FAILED, PARTIALLY_COMPLETED) |
| changeType <i>optional</i> | Signals the type of lifecycle change. Permitted values: - ADD - REMOVE - INSTANTIATE - SCALE - UPDATE - HEAL - TERMINATE | enum (ADD, REMOVE, INSTANTIATE, SCALE, UPDATE, HEAL, TERMINATE) |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---------------------------------|--|--------|
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |

affectedPnfs

| Name | Description | Schema |
|--|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | < string > array |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedSaps

| Name | Description | Schema |
|---|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of lifecycle change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| sapInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|--|--------|
| sapName <i>optional</i> | Human readable name for the SAP. | string |
| sapId <i>required</i> | An identifier with the intention of being globally unique. | string |

affectedVls

| Name | Description | Schema |
|--|---|---|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - DELETE - MODIFY - ADD_LINK_PORT - REMOVE_LINK_PORT | enum (ADD, DELETE, MODIFY, ADD_LINK_PORT, REMOVE_LINK_PORT) |
| nsVirtualLink DescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsVirtualLink InstanceId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| vlProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedVnffgs

| Name | Description | Schema |
|--|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - DELETE - MODIFY | enum (ADD, DELETE, MODIFY) |

| Name | Description | Schema |
|---|---|--------|
| vnffgInstanceId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedVnfs

| Name | Description | Schema |
|---|---|--|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change Permitted values: - ADD - REMOVE - INSTANTIATE - TERMINATE - SCALE - CHANGE_FLAVOUR - HEAL - OPERATE - MODIFY_INFORMATION - CHANGE_EXTERNAL_VNF_CONNECTIVITY | enum (ADD, REMOVE, INSTANTIATE, TERMINATE, SCALE, CHANGE_FLAVOUR, HEAL, OPERATE, MODIFY_INFORMATION, CHANGE_EXTERNAL_VNF_CONNECTIVITY) |
| changedInfo <i>optional</i> | Information about the changed VNF instance information, including VNF configurable properties,if applicable. When the "changedInfo" attribute is present, either the "changedVnfInfo" attribute or the "changedExtConnectivity" attribute or both shall be present. | changedInfo |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfName <i>optional</i> | Name of the VNF Instance. | string |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|----------------------------------|--|--------|
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

changedInfo

| Name | Description | Schema |
|--|--|--|
| changedExtConnectivity <i>optional</i> | | changedExtConnectivity |
| changedVnfInfo <i>optional</i> | This type represents the information that is requested to be modified for a VNF instance. The information to be modified shall comply with the associated NSD. EXAMPLE. The vnfpkgId attribute value for a particular VNF instance can only be updated with a value that matches the identifier value of a VNF package whose vnfdId is present in the associated profile of the NSD. | changedVnfInfo |

changedExtConnectivity

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|---|--------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------------------------------|
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

changedVnfInfo

| Name | Description | Schema |
|---|---|---------------|
| Extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| Metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | New value of the "vnfInstanceDescription" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfInstanceName <i>optional</i> | New value of the "vnfInstanceName" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfPkgId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Read an individual NS LCM operation occurrence resource.

```
GET /ns_lcm_op_occs/{nsLcmOpOccId}
```

Description

The client can use this method to retrieve status information about a NS lifecycle management operation occurrence by reading an individual "NS LCM operation occurrence" resource. This method shall follow the provisions specified in the Tables 6.4.10.3.2-1 and 6.4.10.3.2-2 for URI query parameters, request and response data structures, and response codes.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |

| Type | Name | Description | Schema |
|------|--|---|--------|
| Path | nsLcmOpOccId <i>required</i> | Identifier of a NS lifecycle management operation occurrence. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 200 | <p>200 OK Information about an individual NS instance was queried successfully. The response body shall contain status information about a NS lifecycle management operation occurrence (see clause 6.5.2.3).</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response. This header field shall be present if the response has a non-empty message body.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 200 |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |
| 416 | <p>Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 416 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 200

| Name | Description | Schema |
|--------------------------------------|---|----------------------------|
| NsLcmOpOcc <i>optional</i> | This type represents a request a NS lifecycle operation occurrence. It shall comply with the provisions defined in Table 6.5.2.3-1. | NsLcmOpOcc |

NsLcmOpOcc

| Name | Description | Schema |
|--------------------------------------|--|---------------------------|
| _links <i>required</i> | Links to resources related to this resource. | _links |
| cancelMode <i>optional</i> | Cancellation mode. The NFVO shall not start any new VNF lifecycle management and resource management operation, and shall wait for the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, to finish execution or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. The NFVO shall not start any new VNF lifecycle management and resource management operation, shall cancel the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, and shall wait for the cancellation to finish or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. | enum (GRACEFUL, FORCEFUL) |
| error <i>optional</i> | The definition of the general "ProblemDetails" data structure from IETF RFC 7807 [19] is reproduced in this structure. Compared to the general framework defined in IETF RFC 7807 [19], the "status" and "detail" attributes are mandated to be included by the present document, to ensure that the response contains additional textual information about an error. IETF RFC 7807 [19] foresees extensibility of the "ProblemDetails" type. It is possible that particular APIs in the present document, or particular implementations, define extensions to define additional attributes that provide more information about the error. The description column only provides some explanation of the meaning to Facilitate understanding of the design. For a full description, see IETF RFC 7807 [19]. | error |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---|--|---|
| isAutomaticInvocation <i>required</i> | Set to true if this NS LCM operation occurrence has been automatically triggered by the NFVO. This occurs in the case of auto-scaling, auto-healing and when a nested NS is modified as a result of an operation on its composite NS. Set to false otherwise. | boolean |
| isCancelPending <i>required</i> | If the LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state and the operation is being cancelled, this attribute shall be set to true. Otherwise, it shall be set to false. | boolean |
| lcmOperationType <i>required</i> | The enumeration NsLcmOpType represents those lifecycle operations that trigger a NS lifecycle management operation occurrence notification. Value Description —— ——— INSTANTIATE Represents the "Instantiate NS" LCM operation. SCALE Represents the "Scale NS" LCM operation. UPDATE Represents the "Update NS" LCM operation. TERMINATE Represents the "Terminate NS" LCM operation. HEAL Represents the "Heal NS" LCM operation. | enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| operationParams <i>required</i> | Input parameters of the LCM operation. This attribute shall be formatted according to the request data type of the related LCM operation. The following mapping between lcmOperationType and the data type of this attribute shall apply: - INSTANTIATE: InstantiateNsRequest - SCALE: ScaleNsRequest - UPDATE: UpdateNsRequest - HEAL: HealNsRequest - TERMINATE: TerminateNsRequest | enum (INSTANTIATE, SCALE, UPDATE, HEAL, TERMINATE) |

| Name | Description | Schema |
|--|--|--|
| operationState <i>required</i> | The enumeration NsLcmOperationStateType shall comply with the provisions defined in Table 6.5.4.4-1. Value Description — —— PROCESSING The LCM operation is currently in execution. COMPLETED The LCM operation has been completed successfully. PARTIALLY_COMPLETED The LCM operation has been partially completed with acceptable errors. FAILED_TEMP The LCM operation has failed and execution has stopped, but the execution of the operation is not considered to be closed. FAILED The LCM operation has failed and it cannot be retried or rolled back, as it is determined that such action won't succeed. ROLLING_BACK The LCM operation is currently being rolled back. ROLLED_BACK The LCM operation has been successfully rolled back, i.e. The state of the VNF prior to the original operation invocation has been restored as closely as possible. | enum (PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) |
| resourceChanges <i>optional</i> | This attribute contains information about the cumulative changes to virtualised resources that were performed so far by the LCM operation since its start, if applicable | resourceChanges |
| startTime <i>required</i> | Date-time of the start of the operation. | string (date-time) |
| stateEnteredTime <i>required</i> | Date-time when the current state was entered. | string (date-time) |

links

| Name | Description | Schema |
|--------------------------------------|--|----------------------------|
| cancel <i>optional</i> | This type represents a link to a resource. | cancel |
| continue <i>optional</i> | This type represents a link to a resource. | continue |
| fail <i>optional</i> | This type represents a link to a resource. | fail |
| nsInstance <i>required</i> | This type represents a link to a resource. | nsInstance |

| Name | Description | Schema |
|------------------------------------|--|--------------------------|
| retry <i>optional</i> | This type represents a link to a resource. | retry |
| rollback <i>optional</i> | This type represents a link to a resource. | rollback |
| self <i>required</i> | This type represents a link to a resource. | self |

cancel

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

continue

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

fail

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nsInstance

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

retry

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

rollback

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

error

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

resourceChanges

| Name | Description | Schema |
|--|---|--|
| affectedNss <i>optional</i> | Information about the nested NS instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note. | < affectedNss > array |
| affectedPnfs <i>optional</i> | Information about the PNF instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedPnfs > array |
| affectedSaps <i>optional</i> | Information about the nested NS instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note. | < affectedSaps > array |
| affectedVls <i>optional</i> | Information about the VL instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedVls > array |
| affectedVnffgs <i>optional</i> | Information about the VNFFG instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note | < affectedVnffgs > array |
| affectedVnfs <i>optional</i> | Information about the VNF instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedVnfs > array |

affectedNss

| Name | Description | Schema |
|--|---|---|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED - PARTIALLY_COMPLETED | enum (COMPLETED, ROLLED_BACK, FAILED, PARTIALLY_COMPLETED) |
| changeType <i>optional</i> | Signals the type of lifecycle change. Permitted values: - ADD - REMOVE - INSTANTIATE - SCALE - UPDATE - HEAL - TERMINATE | enum (ADD, REMOVE, INSTANTIATE, SCALE, UPDATE, HEAL, TERMINATE) |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|---------------------------------|--|--------|
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |

affectedPnfs

| Name | Description | Schema |
|--|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | < string > array |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedSaps

| Name | Description | Schema |
|---|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of lifecycle change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| sapInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|--|--------|
| sapName <i>optional</i> | Human readable name for the SAP. | string |
| sapId <i>required</i> | An identifier with the intention of being globally unique. | string |

affectedVls

| Name | Description | Schema |
|--|---|---|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - DELETE - MODIFY - ADD_LINK_PORT - REMOVE_LINK_PORT | enum (ADD, DELETE, MODIFY, ADD_LINK_PORT, REMOVE_LINK_PORT) |
| nsVirtualLink DescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsVirtualLink InstanceId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| vlProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedVnffgs

| Name | Description | Schema |
|--|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - DELETE - MODIFY | enum (ADD, DELETE, MODIFY) |

| Name | Description | Schema |
|---|---|--------|
| vnffgInstanceId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedVnfs

| Name | Description | Schema |
|---|---|--|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change Permitted values: - ADD - REMOVE - INSTANTIATE - TERMINATE - SCALE - CHANGE_FLAVOUR - HEAL - OPERATE - MODIFY_INFORMATION - CHANGE_EXTERNAL_VNF_CONNECTIVITY | enum (ADD, REMOVE, INSTANTIATE, TERMINATE, SCALE, CHANGE_FLAVOUR, HEAL, OPERATE, MODIFY_INFORMATION, CHANGE_EXTERNAL_VNF_CONNECTIVITY) |
| changedInfo <i>optional</i> | Information about the changed VNF instance information, including VNF configurable properties,if applicable. When the "changedInfo" attribute is present, either the "changedVnfInfo" attribute or the "changedExtConnectivity" attribute or both shall be present. | changedInfo |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfName <i>optional</i> | Name of the VNF Instance. | string |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

| Name | Description | Schema |
|----------------------------------|--|--------|
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

changedInfo

| Name | Description | Schema |
|--|--|--|
| changedExtConnectivity <i>optional</i> | | changedExtConnectivity |
| changedVnfInfo <i>optional</i> | This type represents the information that is requested to be modified for a VNF instance. The information to be modified shall comply with the associated NSD. EXAMPLE. The vnfpkgId attribute value for a particular VNF instance can only be updated with a value that matches the identifier value of a VNF package whose vnfdId is present in the associated profile of the NSD. | changedVnfInfo |

changedExtConnectivity

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|---|--------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------------------------------|
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

changedVnfInfo

| Name | Description | Schema |
|---|---|--------|
| Extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| Metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | New value of the "vnfInstanceDescription" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfInstanceName <i>optional</i> | New value of the "vnfInstanceName" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfPkgId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 416

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Continue a NS lifecycle management operation occurrence.

```
POST /ns_lcm_op_occs/{nsLcmOpOccId}/continue
```

Description

The POST method initiates continuing an NS lifecycle operation if that operation has experienced a temporary failure, i.e. the related "NS LCM operation occurrence" is in "FAILED_TEMP" state. This method shall follow the provisions specified in the Tables 6.4.13.3.1-1 and 6.4.13.3.1-2 for URI query parameters, request and response data structures, and response codes.

Parameters

| Type | Name | Description | Schema |
|---------------|---|---|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Path | nsLcmOpOccId <i>required</i> | Identifier of a NS lifecycle management operation occurrence to be continued. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 202 | <p>Accepted The request was accepted for processing, but processing has not been completed. The response shall have an empty payload body.</p> <p>Headers : Location (string (url)) : The resource URI of the created NS instance. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | No Content |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. The general cause for this error and its handling is specified in clause 4.3.5.4, including rules for the presence of the response body. Specifically, in case of this task resource, the reason can also be that the task is not supported for the NS LCM operation occurrence represented by the parent source, and that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is not in FAILED_TEMP state, or another error handling action is starting, such as rollback or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Retry a NS lifecycle management operation occurrence.

```
POST /ns_lcm_op_occs/{nsLcmOpOccId}/retry
```

Description

The POST method initiates retrying a NS lifecycle management operation if that operation has experienced a temporary failure, i.e. the related "NS LCM operation occurrence" is in "FAILED_TEMP" state. This method shall follow the provisions specified in the Tables 6.4.11.3.1-1 and 6.4.11.3.1-2 for URI query parameters, request and response data structures, and response codes.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Path | nsLcmOpOccId <i>required</i> | Identifier of a NS lifecycle management operation occurrence to be retried. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request triggering a NS LCM operation. It can also be retrieved from the "nsLcmOpOccId" attribute in the NsLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 202 | <p>Accepted The request was accepted for processing, but processing has not been completed. The response shall have an empty payload body.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created NS instance.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | No Content |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. Specifically in case of this task resource, the response code 404 shall also be returned if the task is not supported for the NS LCM operation occurrence represented by the parent resource, which means that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is not in FAILED_TEMP state, or another error handling action is starting, such as rollback or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Rollback a NS lifecycle management operation occurrence.

```
POST /ns_lcm_op_occs/{nsLcmOpOccId}/rollback
```

Description

The POST method initiates rolling back a NS lifecycle operation if that operation has experienced a temporary failure, i.e. the related "NS LCM operation occurrence" is in "FAILED_TEMP" state. This method shall follow the provisions specified in the Tables 6.4.12.3.1-1 and 6.4.12.3.1-2 for URI query parameters, request and response data structures, and response codes.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Path | nsLcmOpOccId <i>required</i> | Identifier of a NS lifecycle management operation occurrence to be rolled back. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request triggering a NS LCM operation. It can also be retrieved from the "nsLcmOpOccId" attribute in the NsLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 202 | <p>Accepted The request was accepted for processing, but processing has not been completed. The response shall have an empty payload body.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created NS instance.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | No Content |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. The general cause for this error and its handling is specified in clause 4.3.5.4, including rules for the presence of the response body. Specifically, in case of this task resource, the reason can also be that the task is not supported for the NS LCM operation occurrence represented by the parent source, and that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is not in FAILED_TEMP state, or another error handling action is starting, such as rollback or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Cancel a NS lifecycle management operation occurrence.

```
POST /nslcm/v1/ns_lcm_op_occs/{nsLcmOpOccId}/cancel
```

Description

The POST method initiates canceling an ongoing NS lifecycle management operation while it is being executed or rolled back, i.e. the related "NS LCM operation occurrence" is either in "PROCESSING" or "ROLLING_BACK" state. This method shall follow the provisions specified in the Tables 6.4.15.3.1-1 and 6.4.15.3.1-2 for URI query parameters, request and response data structures, and response codes.

Parameters

| Type | Name | Description | Schema |
|---------------|---|---|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Path | nsLcmOpOccId <i>required</i> | Identifier of a NS lifecycle management operation occurrence to be canceled. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request triggering a NS LCM operation. It can also be retrieved from the "nsLcmOpOccId" attribute in the NsLcmOperationOccurrenceNotification. | string |

| Type | Name | Description | Schema |
|------|--------------------------------|-------------|----------------------|
| Body | body <i>required</i> | | body |

body

| Name | Description | Schema |
|--------------------------------------|--|----------------------------|
| CancelMode <i>required</i> | This type represents a parameter to select the mode of canceling an ongoing NS LCM operation occurrence. It shall comply with the provisions defined in Table 6.5.2.16-1.. | CancelMode |

CancelMode

| Name | Description | Schema |
|--------------------------------------|--|---------------------------|
| cancelMode <i>required</i> | Cancellation mode. The NFVO shall not start any new VNF lifecycle management and resource management operation, and shall wait for the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, to finish execution or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. The NFVO shall not start any new VNF lifecycle management and resource management operation, shall cancel the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, and shall wait for the cancellation to finish or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. | enum (GRACEFUL, FORCEFUL) |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | Accepted The request was accepted for processing, but processing has not been completed. The response shall have an empty payload body. Headers : Location (string (url)) : The resource URI of the created NS instance. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. | No Content |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. Specifically in case of this task resource, the response code 404 shall also be returned if the task is not supported for the NS LCM operation occurrence represented by the parent resource, which means that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>409 Conflict. Error: The operation cannot be executed currently, due to a conflict with the state of the NS LCM operation occurrence resource. Typically, this is due to the fact that the operation occurrence is not in STARTING, PROCESSING or ROLLING_BACK state. The response body shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Mark a NS lifecycle management operation occurrence as failed.

```
POST /nslcm/v1/ns_lcm_op_occs/{nsLcmOpOccId}/fail
```

Description

The POST method marks a NS lifecycle management operation occurrence as "finally failed" if that operation occurrence is in "FAILED_TEMP" state.

Parameters

| Type | Name | Description | Schema |
|---------------|---|---|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Path | nsLcmOpOccId <i>required</i> | Identifier of a NS lifecycle management operation occurrence to be marked as "failed". This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request triggering a NS LCM operation. It can also be retrieved from the "nsLcmOpOccId" attribute in the NsLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 200 | <p>200 OK</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.This header field shall be present if the response has a non-empty message body.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 200 |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 404 | <p>Not Found Error: The API producer did not find a current representation for the target resource or is not willing to disclose that one exists. The general cause for this error and its handling is specified in clause 4.3.5.4, including rules for the presence of the response body. Specifically, in case of this task resource, the reason can also be that the task is not supported for the NS LCM operation occurrence represented by the parent source, and that the task resource consequently does not exist. In this case, the response body shall be present, and shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 409 | <p>The operation cannot be executed currently, due to a conflict with the state of the NS instance resource. Typically, this is due to the fact that the NS instance resource is not in FAILED_TEMP state, or another error handling action is starting, such as rollback or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 409 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 200

| Name | Description | Schema |
|--------------------------------------|---|----------------------------|
| NsLcmOpOcc <i>optional</i> | This type represents a request a NS lifecycle operation occurrence. It shall comply with the provisions defined in Table 6.5.2.3-1. | NsLcmOpOcc |

NsLcmOpOcc

| Name | Description | Schema |
|----------------------------------|--|------------------------|
| _links <i>required</i> | Links to resources related to this resource. | _links |

| Name | Description | Schema |
|---|--|---------------------------|
| cancelMode <i>optional</i> | Cancellation mode. The NFVO shall not start any new VNF lifecycle management and resource management operation, and shall wait for the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, to finish execution or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. The NFVO shall not start any new VNF lifecycle management and resource management operation, shall cancel the ongoing VNF lifecycle management and resource management operations in the underlying system, typically the VNFM and VIM, and shall wait for the cancellation to finish or to time out. After that, the NFVO shall put the operation occurrence into the FAILED_TEMP state. | enum (GRACEFUL, FORCEFUL) |
| error <i>optional</i> | The definition of the general "ProblemDetails" data structure from IETF RFC 7807 [19] is reproduced in this structure. Compared to the general framework defined in IETF RFC 7807 [19], the "status" and "detail" attributes are mandated to be included by the present document, to ensure that the response contains additional textual information about an error. IETF RFC 7807 [19] foresees extensibility of the "ProblemDetails" type. It is possible that particular APIs in the present document, or particular implementations, define extensions to define additional attributes that provide more information about the error. The description column only provides some explanation of the meaning to Facilitate understanding of the design. For a full description, see IETF RFC 7807 [19]. | error |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| isAutomaticInvocation <i>required</i> | Set to true if this NS LCM operation occurrence has been automatically triggered by the NFVO. This occurs in the case of auto-scaling, auto-healing and when a nested NS is modified as a result of an operation on its composite NS. Set to false otherwise. | boolean |
| isCancelPending <i>required</i> | If the LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state and the operation is being cancelled, this attribute shall be set to true. Otherwise, it shall be set to false. | boolean |

| Name | Description | Schema |
|--|---|--|
| lcmOperationType <i>required</i> | The enumeration NsLcmOpType represents those lifecycle operations that trigger a NS lifecycle management operation occurrence notification. Value Description — ——— INSTANTIATE Represents the "Instantiate NS" LCM operation. SCALE Represents the "Scale NS" LCM operation. UPDATE Represents the "Update NS" LCM operation. TERMINATE Represents the "Terminate NS" LCM operation. HEAL Represents the "Heal NS" LCM operation. | enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| operationParams <i>required</i> | Input parameters of the LCM operation. This attribute shall be formatted according to the request data type of the related LCM operation. The following mapping between lcmOperationType and the data type of this attribute shall apply: - INSTANTIATE: InstantiateNsRequest - SCALE: ScaleNsRequest - UPDATE: UpdateNsRequest - HEAL: HealNsRequest - TERMINATE: TerminateNsRequest | enum (INSTANTIATE, SCALE, UPDATE, HEAL, TERMINATE) |
| operationState <i>required</i> | The enumeration NsLcmOperationStateType shall comply with the provisions defined in Table 6.5.4.4-1. Value Description — ——— PROCESSING The LCM operation is currently in execution. COMPLETED The LCM operation has been completed successfully. PARTIALLY_COMPLETED The LCM operation has been partially completed with acceptable errors. FAILED_TEMP The LCM operation has failed and execution has stopped, but the execution of the operation is not considered to be closed. FAILED The LCM operation has failed and it cannot be retried or rolled back, as it is determined that such action won't succeed. ROLLING_BACK The LCM operation is currently being rolled back. ROLLED_BACK The LCM operation has been successfully rolled back, i.e. The state of the VNF prior to the original operation invocation has been restored as closely as possible. | enum (PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) |
| resourceChanges <i>optional</i> | This attribute contains information about the cumulative changes to virtualised resources that were performed so far by the LCM operation since its start, if applicable | resourceChanges |
| startTime <i>required</i> | Date-time of the start of the operation. | string (date-time) |

| Name | Description | Schema |
|--|---|--------------------|
| stateEnteredTime <i>required</i> | Date-time when the current state was entered. | string (date-time) |

links

| Name | Description | Schema |
|--------------------------------------|--|----------------------------|
| cancel <i>optional</i> | This type represents a link to a resource. | cancel |
| continue <i>optional</i> | This type represents a link to a resource. | continue |
| fail <i>optional</i> | This type represents a link to a resource. | fail |
| nsInstance <i>required</i> | This type represents a link to a resource. | nsInstance |
| retry <i>optional</i> | This type represents a link to a resource. | retry |
| rollback <i>optional</i> | This type represents a link to a resource. | rollback |
| self <i>required</i> | This type represents a link to a resource. | self |

cancel

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

continue

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

fail

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

nsInstance

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

retry

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

rollback

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

error

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

resourceChanges

| Name | Description | Schema |
|--|---|--|
| affectedNss <i>optional</i> | Information about the nested NS instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note. | < affectedNss > array |
| affectedPnfs <i>optional</i> | Information about the PNF instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedPnfs > array |
| affectedSaps <i>optional</i> | Information about the nested NS instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note. | < affectedSaps > array |
| affectedVls <i>optional</i> | Information about the VL instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedVls > array |
| affectedVnffgs <i>optional</i> | Information about the VNFFG instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. See note | < affectedVnffgs > array |
| affectedVnfs <i>optional</i> | Information about the VNF instances that were affected during the lifecycle operation, if this notification represents the result of a lifecycle operation. | < affectedVnfs > array |

affectedNss

| Name | Description | Schema |
|--|---|---|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED - PARTIALLY_COMPLETED | enum (COMPLETED, ROLLED_BACK, FAILED, PARTIALLY_COMPLETED) |
| changeType <i>optional</i> | Signals the type of lifecycle change. Permitted values: - ADD - REMOVE - INSTANTIATE - SCALE - UPDATE - HEAL - TERMINATE | enum (ADD, REMOVE, INSTANTIATE, SCALE, UPDATE, HEAL, TERMINATE) |
| nsInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| nsdId <i>required</i> | An identifier with the intention of being globally unique. | string |

affectedPnfs

| Name | Description | Schema |
|--|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| cpInstanceId <i>required</i> | Identifier of the CP in the scope of the PNF. | < string > array |
| pnfId <i>required</i> | An identifier with the intention of being globally unique. | string |
| pnfName <i>optional</i> | Name of the PNF. | string |
| pnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| pnfdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedSaps

| Name | Description | Schema |
|---|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of lifecycle change. Permitted values: - ADD - REMOVE - MODIFY | enum (ADD, REMOVE, MODIFY) |
| sapInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| sapName <i>optional</i> | Human readable name for the SAP. | string |
| sapId <i>required</i> | An identifier with the intention of being globally unique. | string |

affectedVls

| Name | Description | Schema |
|--|---|---|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - DELETE - MODIFY - ADD_LINK_PORT - REMOVE_LINK_PORT | enum (ADD, DELETE, MODIFY, ADD_LINK_PORT, REMOVE_LINK_PORT) |
| nsVirtualLink DescId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| nsVirtualLink InstanceId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| vlProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedVnffgs

| Name | Description | Schema |
|---|---|---------------------------------------|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change. Permitted values: - ADD - DELETE - MODIFY | enum (ADD, DELETE, MODIFY) |
| vnffgInstanceId <i>required</i> | An identifier that is unique with respect to a NS. Representation: string of variable length. | string |
| vnffgdId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |

affectedVnfs

| Name | Description | Schema |
|---|---|--|
| changeResult <i>optional</i> | Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED | enum (COMPLETED, ROLLED_BACK, FAILED) |
| changeType <i>optional</i> | Signals the type of change Permitted values: - ADD - REMOVE - INSTANTIATE - TERMINATE - SCALE - CHANGE_FLAVOUR - HEAL - OPERATE - MODIFY_INFORMATION - CHANGE_EXTERNAL_VNF_CONNECTIVITY | enum (ADD, REMOVE, INSTANTIATE, TERMINATE, SCALE, CHANGE_FLAVOUR, HEAL, OPERATE, MODIFY_INFORMATION, CHANGE_EXTERNAL_VNF_CONNECTIVITY) |
| changedInfo <i>optional</i> | Information about the changed VNF instance information, including VNF configurable properties,if applicable. When the "changedInfo" attribute is present, either the "changedVnfInfo" attribute or the "changedExtConnectivity" attribute or both shall be present. | changedInfo |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| vnfName <i>optional</i> | Name of the VNF Instance. | string |
| vnfProfileId <i>required</i> | An identifier that is unique within a NS descriptor. Representation: string of variable length. | string |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

changedInfo

| Name | Description | Schema |
|--|--|--|
| changedExtConnectivity <i>optional</i> | | changedExtConnectivity |
| changedVnfInfo <i>optional</i> | This type represents the information that is requested to be modified for a VNF instance. The information to be modified shall comply with the associated NSD. EXAMPLE. The vnfPkgId attribute value for a particular VNF instance can only be updated with a value that matches the identifier value of a VNF package whose vnfdId is present in the associated profile of the NSD. | changedVnfInfo |

changedExtConnectivity

| Name | Description | Schema |
|--|--|---|
| extLinkPorts <i>optional</i> | Link ports of this VL. | < extLinkPorts > array |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

extLinkPorts

| Name | Description | Schema |
|--|---|--------|
| cpInstanceId <i>optional</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | string |

| Name | Description | Schema |
|--|--|--------------------------------|
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| resourceHandle <i>required</i> | This type represents the information that allows addressing a virtualised resource that is used by a VNF instance. Information about the resource is available from the VIM. | resourceHandle |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

resourceHandle

| Name | Description | Schema |
|--|--|--------|
| resourceId <i>required</i> | An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance. | string |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>required</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|--|--------|
| vimLevelResourceType <i>optional</i> | Type of the resource in the scope of the VIM or the resource provider. | string |

changedVnfInfo

| Name | Description | Schema |
|---|---|--------|
| Extensions <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| Metadata <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfConfigurableProperties <i>optional</i> | This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159. | object |
| vnfInstanceDescription <i>optional</i> | New value of the "vnfInstanceDescription" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |
| vnfInstanceName <i>optional</i> | New value of the "vnfInstanceName" attribute in "VnfInstance", or "null" to remove the attribute. | string |
| vnfPkgId <i>optional</i> | An identifier with the intention of being globally unique. | string |

Response 400

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 409

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|--------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Subscribe to NS lifecycle change notifications.

POST /subscriptions

Description

The POST method creates a new subscription. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.16.3.1-1 and 6.4.16.3.1-2. Creation of two subscription resources with the same callbackURI and the same filter can result in performance degradation and will provide duplicates of notifications to the OSS, and might make sense only in very rare use cases. Consequently, the NFVO may either allow creating a subscription resource if another subscription resource with the same filter and callbackUri already exists (in which case it shall return the "201 Created" response code), or may decide to not create a duplicate subscription resource (in which case it shall return a "303 See Other" response code referencing the existing subscription resource with the same filter and callbackUri).

Parameters

| Type | Name | Description | Schema |
|--------|---|--|----------------------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Body | body <i>required</i> | | body |

body

| Name | Description | Schema |
|---|---|---|
| LccnSubscriptionRequest <i>required</i> | This type represents a subscription request related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.2.2-1.. | LccnSubscriptionRequest |

LccnSubscriptionRequest

| Name | Description | Schema |
|--|---|--------------------------------|
| authentication <i>optional</i> | | authentication |
| callbackUri <i>required</i> | String formatted according to IETF RFC 3986. | string |
| filter <i>optional</i> | This type represents a subscription filter related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.3.8-1. At a particular nesting level in the filter structure, the following applies: All attributes shall match in order for the filter to match (logical "and" between different filter attributes). If an attribute is an array, the attribute shall match if at least one of the values in the array matches (logical "or" between the values of one filter attribute). | filter |

authentication

| Name | Description | Schema |
|---|--|---|
| authType <i>required</i> | Defines the types of Authentication / Authorization which the API consumer is willing to accept when receiving a notification. Permitted values: * BASIC: In every HTTP request to the notification endpoint, use HTTP Basic authentication with the client credentials. * OAUTH2_CLIENT_CREDENTIALS: In every HTTP request to the notification endpoint, use an OAuth 2.0 Bearer token, obtained using the client credentials grant type. * TLS_CERT: Every HTTP request to the notification endpoint is sent over a mutually authenticated TLS session, i.e. not only the server is authenticated, but also the client is authenticated during the TLS tunnel setup. | < enum (BASIC, OAUTH2_CLIENT_CREDENTIALS, TLS_CERT) > array |
| paramsBasic <i>optional</i> | Parameters for authentication/authorization using BASIC. Shall be present if authType is "BASIC" and the contained information has not been provisioned out of band. Shall be absent otherwise. | paramsBasic |
| paramsOAuth2ClientCredentials <i>optional</i> | Parameters for authentication/authorization using OAUTH2_CLIENT_CREDENTIALS. Shall be present if authType is "OAUTH2_CLIENT_CREDENTIALS" and the contained information has not been provisioned out of band. Shall be absent otherwise. | paramsOAuth2ClientCredentials |

paramsBasic

| Name | Description | Schema |
|------------------------------------|--|--------|
| password <i>optional</i> | Password to be used in HTTP Basic authentication. Shall be present if it has not been provisioned out of band. | string |
| userName <i>optional</i> | Username to be used in HTTP Basic authentication. Shall be present if it has not been provisioned out of band. | string |

paramsOAuth2ClientCredentials

| Name | Description | Schema |
|--|---|--------|
| clientId <i>optional</i> | Client identifier to be used in the access token request of the OAuth 2.0 client credentials grant type. Shall be present if it has not been provisioned out of band. The clientId and clientPassword passed in a subscription shall not be the same as the clientId and clientPassword that are used to obtain authorization for API requests. Client credentials may differ between subscriptions. The value of clientPassword should be generated by a random process. | string |
| clientPassword <i>optional</i> | Client password to be used in the access token request of the OAuth 2.0 client credentials grant type. Shall be present if it has not been provisioned out of band. The clientId and clientPassword passed in a subscription shall not be the same as the clientId and clientPassword that are used to obtain authorization for API requests. Client credentials may differ between subscriptions. The value of clientPassword should be generated by a random process. | string |
| tokenEndpoint <i>optional</i> | String formatted according to IETF RFC 3986. | string |

filter

| Name | Description | Schema |
|---|---|---|
| lcmOpNameImpactingNsComponent <i>optional</i> | Match particular LCM operation names for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (VNF_INSTANTIATE, VNF_SCALE, VNF_SCALE_TO_LEVEL, VNF_CHANGE_FLAVOUR, VNF_TERMINATE, VNF_HEAL, VNF_OPERATE, VNF_CHANGE_EXT_CONN, VNF_MODIFY_INFO, NS_INSTANTIATE, NS_SCALE, NS_UPDATE, NS_TERMINATE, NS_HEAL) > array |

| Name | Description | Schema |
|--|--|---|
| lcmOpOccStatusImpactingNsComponent <i>optional</i> | Match particular LCM operation status values as reported in notifications of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (START, COMPLETED, PARTIALLY_COMPLETED, FAILED, ROLLED_BACK) > array |
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: - NsLcmOperationOccurrenceNotification - NsIdentifierCreationNotification - NsIdentifierDeletionNotification - NsChangeNotification | < enum (NsLcmOperationOccurrenceNotification, NsIdentifierCreationNotification, NsIdentifierDeletionNotification, NsChangeNotification) > array |
| nsComponentTypes <i>optional</i> | Match particular NS component types for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChang. | < enum (VNF, PNF, NS) > array |
| nsInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match NS instances. It shall comply with the provisions defined in Table 4.4.1.5-1. | nsInstanceSubscriptionFilter |
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (PROCESSING, COMPLETED, PARTIALLY_COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular NS lifecycle operation types for the notification of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) > array |

nsInstanceSubscriptionFilter

| Name | Description | Schema |
|---|--|------------------|
| nsInstanceIds <i>optional</i> | If present, match NS instances with an instance identifier listed in this attribute. | < string > array |
| nsInstanceNames <i>optional</i> | If present, match NS instances with a NS Instance Name listed in this attribute. | < string > array |
| nsdIds <i>optional</i> | If present, match NS instances that were created based on a NSD identified by one of the nsdId values listed in this attribute. | < string > array |
| pnfdIds <i>optional</i> | If present, match NS instances that contain PNFs that are represented by a PNFD identified by one of the pnfdId values listed in this attribute. | < string > array |
| vnfdIds <i>optional</i> | If present, match NS instances that contain VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. | < string > array |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 201 | <p>201 Created The subscription was created successfully. The response body shall contain a representation of the created subscription resource. The HTTP response shall include a "Location:" HTTP header that points to the created subscription resource.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.This header field shall be present if the response has a non-empty message body.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 201 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 303 | <p>See Other. A subscription with the same callbackURI and the same filter already exists and the policy of the NFVO is to not create redundant subscriptions. The HTTP response shall include a "Location" HTTP header that contains the resource URI of the existing subscription resource. The response body shall be empty.</p> <p>Headers : WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | No Content |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. Specifically in case of this task resource, the reason can also be that the task is not supported for the NS LCM operation occurrence represented by the parent resource, and that the task resource consequently does not exist. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 201

| Name | Description | Schema |
|--|--|----------------------------------|
| LccnSubscription <i>optional</i> | This type represents a subscription related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.2.4-1. | LccnSubscription |

LccnSubscription

| Name | Description | Schema |
|---------------------------------------|---|------------------------|
| _links <i>required</i> | Links to resources related to this resource. | _links |
| callbackUri <i>required</i> | String formatted according to IETF RFC 3986. | string |
| filter <i>optional</i> | This type represents a subscription filter related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.3.8-1. At a particular nesting level in the filter structure, the following applies: All attributes shall match in order for the filter to match (logical "and" between different filter attributes). If an attribute is an array, the attribute shall match if at least one of the values in the array matches (logical "or" between the values of one filter attribute). | filter |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

[_links](#)

| Name | Description | Schema |
|--------------------------------|--|----------------------|
| self <i>required</i> | This type represents a link to a resource. | self |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

filter

| Name | Description | Schema |
|--|---|---|
| lcmOpNameImpactingNsComponent <i>optional</i> | Match particular LCM operation names for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (VNF_INSTANTIATE, VNF_SCALE, VNF_SCALE_TO_LEVEL, VNF_CHANGE_FLAVOUR, VNF_TERMINATE, VNF_HEAL, VNF_OPERATE, VNF_CHANGE_EXT_CONN, VNF_MODIFY_INFO, NS_INSTANTIATE, NS_SCALE, NS_UPDATE, NS_TERMINATE, NS_HEAL) > array |
| lcmOpOccStatusImpactingNsComponent <i>optional</i> | Match particular LCM operation status values as reported in notifications of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (START, COMPLETED, PARTIALLY_COMPLETED, FAILED, ROLLED_BACK) > array |
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: - NsLcmOperationOccurrenceNotification - NsIdentifierCreationNotification - NsIdentifierDeletionNotification - NsChangeNotification | < enum (NsLcmOperationOccurrenceNotification, NsIdentifierCreationNotification, NsIdentifierDeletionNotification, NsChangeNotification) > array |
| nsComponentTypes <i>optional</i> | Match particular NS component types for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChang. | < enum (VNF, PNF, NS) > array |
| nsInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match NS instances. It shall comply with the provisions defined in Table 4.4.1.5-1. | nsInstanceSubscriptionFilter |

| Name | Description | Schema |
|---|--|---|
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (PROCESSING, COMPLETED, PARTIALLY_COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular NS lifecycle operation types for the notification of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) > array |

nsInstanceSubscriptionFilter

| Name | Description | Schema |
|---|--|------------------|
| nsInstanceIds <i>optional</i> | If present, match NS instances with an instance identifier listed in this attribute. | < string > array |
| nsInstanceNames <i>optional</i> | If present, match NS instances with a NS Instance Name listed in this attribute. | < string > array |
| nsdIds <i>optional</i> | If present, match NS instances that were created based on a NSD identified by one of the nsdId values listed in this attribute. | < string > array |
| pnfdIds <i>optional</i> | If present, match NS instances that contain PNFs that are represented by a PNFD identified by one of the pnfdId values listed in this attribute. | < string > array |
| vnfdIds <i>optional</i> | If present, match NS instances that contain VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. | < string > array |

Response 400

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Query multiple subscriptions.

```
GET /subscriptions
```

Description

Query Subscription Information. The GET method queries the list of active subscriptions of the functional block that invokes the method. It can be used e.g. for resynchronization after error situations.

Parameters

| Type | Name | Description | Schema |
|--------|---|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|---|
| 200 | <p>200 OK The list of subscriptions was queried successfully. The response body shall contain the representations of all active subscriptions of the functional block that invokes the method.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response. This header field shall be present if the response has a non-empty message body.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | < Response 200 > array |
| 400 | <p>Bad Request. Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. Specifically in case of this task resource, the reason can also be that the task is not supported for the NS LCM operation occurrence represented by the parent resource, and that the task resource consequently does not exist. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 200

| Name | Description | Schema |
|--|--|----------------------------------|
| LccnSubscription <i>optional</i> | This type represents a subscription related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.2.4-1. | LccnSubscription |

LccnSubscription

| Name | Description | Schema |
|---------------------------------------|--|------------------------|
| _links <i>required</i> | Links to resources related to this resource. | _links |
| callbackUri <i>required</i> | String formatted according to IETF RFC 3986. | string |

| Name | Description | Schema |
|----------------------------------|---|------------------------|
| filter <i>optional</i> | This type represents a subscription filter related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.3.8-1. At a particular nesting level in the filter structure, the following applies: All attributes shall match in order for the filter to match (logical "and" between different filter attributes). If an attribute is an array, the attribute shall match if at least one of the values in the array matches (logical "or" between the values of one filter attribute). | filter |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

links

| Name | Description | Schema |
|--------------------------------|--|----------------------|
| self <i>required</i> | This type represents a link to a resource. | self |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

filter

| Name | Description | Schema |
|--|---|---|
| lcmOpNameImpactingNsComponent <i>optional</i> | Match particular LCM operation names for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (VNF_INSTANTIATE, VNF_SCALE, VNF_SCALE_TO_LEVEL, VNF_CHANGE_FLAVOUR, VNF_TERMINATE, VNF_HEAL, VNF_OPERATE, VNF_CHANGE_EXT_CONN, VNF_MODIFY_INFO, NS_INSTANTIATE, NS_SCALE, NS_UPDATE, NS_TERMINATE, NS_HEAL) > array |
| lcmOpOccStatusImpactingNsComponent <i>optional</i> | Match particular LCM operation status values as reported in notifications of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (START, COMPLETED, PARTIALLY_COMPLETED, FAILED, ROLLED_BACK) > array |
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: - NsLcmOperationOccurrenceNotification - NsIdentifierCreationNotification - NsIdentifierDeletionNotification - NsChangeNotification | < enum (NsLcmOperationOccurrenceNotification, NsIdentifierCreationNotification, NsIdentifierDeletionNotification, NsChangeNotification) > array |
| nsComponentTypes <i>optional</i> | Match particular NS component types for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChang. | < enum (VNF, PNF, NS) > array |
| nsInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match NS instances. It shall comply with the provisions defined in Table 4.4.1.5-1. | nsInstanceSubscriptionFilter |

| Name | Description | Schema |
|---|--|---|
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (PROCESSING, COMPLETED, PARTIALLY_COMPL ETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular NS lifecycle operation types for the notification of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) > array |

nsInstanceSubscriptionFilter

| Name | Description | Schema |
|---|--|------------------|
| nsInstanceIds <i>optional</i> | If present, match NS instances with an instance identifier listed in this attribute. | < string > array |
| nsInstanceNames <i>optional</i> | If present, match NS instances with a NS Instance Name listed in this attribute. | < string > array |
| nsdIds <i>optional</i> | If present, match NS instances that were created based on a NSD identified by one of the nsdId values listed in this attribute. | < string > array |
| pnfdIds <i>optional</i> | If present, match NS instances that contain PNFs that are represented by a PNFD identified by one of the pnfdId values listed in this attribute. | < string > array |
| vnfdIds <i>optional</i> | If present, match NS instances that contain VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. | < string > array |

Response 400

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Read an individual subscription resource.

```
GET /subscriptions/{subscriptionId}
```

Description

The GET method retrieves information about a subscription by reading an individual subscription resource. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.17.3.2-1 and 6.4.17.3.2-2

Parameters

| Type | Name | Description | Schema |
|--------|--|--|--------|
| Header | Accept <i>required</i> | Content-Types that are acceptable for the response. Reference: IETF RFC 7231 | string |
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Path | subscriptionId <i>required</i> | Identifier of this subscription. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 200 | <p>200 OK The operation has completed successfully. The response body shall contain a representation of the subscription resource.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response. This header field shall be present if the response has a non-empty message body.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 200 |
| 400 | <p>Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.</p> <p>Headers :</p> <p>Content-Type (string) : The MIME type of the body of the response.</p> <p>WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 400 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 404 | <p>Not Found If the API producer did not find a current representation for the resource addressed by the URI passed in the request, or is not willing to disclose that one exists, it shall respond with this response code. Specifically in case of this task resource, the reason can also be that the task is not supported for the NS LCM operation occurrence represented by the parent resource, and that the task resource consequently does not exist. The "ProblemDetails" structure may be provided, including in the "detail" attribute information about the source of the problem, e.g. a wrong resource URI variable.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 404 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 200

| Name | Description | Schema |
|--|--|----------------------------------|
| LccnSubscription <i>optional</i> | This type represents a subscription related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.2.4-1. | LccnSubscription |

LccnSubscription

| Name | Description | Schema |
|---------------------------------------|--|------------------------|
| _links <i>required</i> | Links to resources related to this resource. | _links |
| callbackUri <i>required</i> | String formatted according to IETF RFC 3986. | string |

| Name | Description | Schema |
|----------------------------------|---|------------------------|
| filter <i>optional</i> | This type represents a subscription filter related to notifications about NS lifecycle changes. It shall comply with the provisions defined in Table 6.5.3.8-1. At a particular nesting level in the filter structure, the following applies: All attributes shall match in order for the filter to match (logical "and" between different filter attributes). If an attribute is an array, the attribute shall match if at least one of the values in the array matches (logical "or" between the values of one filter attribute). | filter |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |

links

| Name | Description | Schema |
|--------------------------------|--|----------------------|
| self <i>required</i> | This type represents a link to a resource. | self |

self

| Name | Description | Schema |
|--------------------------------|---------------------------------|--------------|
| href <i>required</i> | URI of the referenced resource. | string (url) |

filter

| Name | Description | Schema |
|--|---|---|
| lcmOpNameImpactingNsComponent <i>optional</i> | Match particular LCM operation names for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (VNF_INSTANTIATE, VNF_SCALE, VNF_SCALE_TO_LEVEL, VNF_CHANGE_FLAVOUR, VNF_TERMINATE, VNF_HEAL, VNF_OPERATE, VNF_CHANGE_EXT_CONN, VNF_MODIFY_INFO, NS_INSTANTIATE, NS_SCALE, NS_UPDATE, NS_TERMINATE, NS_HEAL) > array |
| lcmOpOccStatusImpactingNsComponent <i>optional</i> | Match particular LCM operation status values as reported in notifications of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChangeNotification", and shall be absent otherwise. | < enum (START, COMPLETED, PARTIALLY_COMPLETED, FAILED, ROLLED_BACK) > array |
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: - NsLcmOperationOccurrenceNotification - NsIdentifierCreationNotification - NsIdentifierDeletionNotification - NsChangeNotification | < enum (NsLcmOperationOccurrenceNotification, NsIdentifierCreationNotification, NsIdentifierDeletionNotification, NsChangeNotification) > array |
| nsComponentTypes <i>optional</i> | Match particular NS component types for the notification of type NsChangeNotification. May be present if the "notificationTypes" attribute contains the value "NsChang. | < enum (VNF, PNF, NS) > array |
| nsInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match NS instances. It shall comply with the provisions defined in Table 4.4.1.5-1. | nsInstanceSubscriptionFilter |

| Name | Description | Schema |
|---|--|---|
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (PROCESSING, COMPLETED, PARTIALLY_COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular NS lifecycle operation types for the notification of type NsLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "NsLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL) > array |

nsInstanceSubscriptionFilter

| Name | Description | Schema |
|---|--|------------------|
| nsInstanceIds <i>optional</i> | If present, match NS instances with an instance identifier listed in this attribute. | < string > array |
| nsInstanceNames <i>optional</i> | If present, match NS instances with a NS Instance Name listed in this attribute. | < string > array |
| nsdIds <i>optional</i> | If present, match NS instances that were created based on a NSD identified by one of the nsdId values listed in this attribute. | < string > array |
| pnfdIds <i>optional</i> | If present, match NS instances that contain PNFs that are represented by a PNFD identified by one of the pnfdId values listed in this attribute. | < string > array |
| vnfdIds <i>optional</i> | If present, match NS instances that contain VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. | < string > array |

Response 400

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|---------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 404

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Terminate a subscription.

```
DELETE /subscriptions/{subscriptionId}
```

Description

The DELETE method terminates an individual subscription. This method shall support the URI query parameters, request and response data structures, and response codes, as specified in the Tables 6.4.17.3.5-1 and 6.4.17.3.5-2.

Parameters

| Type | Name | Description | Schema |
|--------|--|--|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Path | subscriptionId <i>required</i> | Identifier of this subscription. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 204 | 204 No Content The subscription resource was deleted successfully. The response body shall be empty. Headers : WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. | No Content |
| 400 | Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. | Response 400 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 401 | <p>Unauthorized If the request contains no access token even though one is required, or if the request contains an authorization token that is invalid (e.g. expired or revoked), the API producer should respond with this response. The details of the error shall be returned in the WWW-Authenticate HTTP header, as defined in IETF RFC 6750 and IETF RFC 7235. The ProblemDetails structure may be provided.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.</p> | Response 401 |
| 403 | <p>Forbidden If the API consumer is not allowed to perform a particular request to a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided. It should include in the "detail" attribute information about the source of the problem, and may indicate how to solve it.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 403 |
| 405 | <p>Method Not Allowed If a particular HTTP method is not supported for a particular resource, the API producer shall respond with this response code. The "ProblemDetails" structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 405 |
| 406 | <p>Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>Internal Server Error If there is an application error not related to the client's input that cannot be easily mapped to any other HTTP response code ("catch all error"), the API producer shall respond with this response code. The ProblemDetails structure shall be provided, and shall include in the "detail" attribute more information about the source of the problem.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 500 |
| 503 | <p>Service Unavailable If the API producer encounters an internal overload situation of itself or of a system it relies on, it should respond with this response code, following the provisions in IETF RFC 7231 [13] for the use of the Retry-After HTTP header and for the alternative to refuse the connection. The "ProblemDetails" structure may be omitted.</p> <p>Headers : Content-Type (string) : The MIME type of the body of the response.</p> | Response 503 |

Response 400

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 401

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 403

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|---------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 405

| Name | Description | Schema |
|------------------------------------|---|---------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |

| Name | Description | Schema |
|---------------------------------|---|--------------|
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 406

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |

| Name | Description | Schema |
|--------------------------------|--|--------------|
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 500

| Name | Description | Schema |
|------------------------------------|---|--------------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |

Response 503

| Name | Description | Schema |
|----------------------------------|--|--------|
| detail <i>required</i> | A human-readable explanation specific to this occurrence of the problem. | string |

| Name | Description | Schema |
|------------------------------------|---|--------------|
| instance <i>optional</i> | A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced. | string (URI) |
| status <i>required</i> | The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem. | integer |
| title <i>optional</i> | A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4). | string |
| type <i>optional</i> | A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the problem (e.g. using HTML) when dereferenced. When this member is not present, its value is assumed to be "about:blank". | string (URI) |