

SOL003 - VNF Lifecycle Management interface

Overview

SOL003 - VNF Lifecycle Management interface definition IMPORTANT: Please note that this file might be not aligned to the current version of the ETSI Group Specification it refers to. In case of discrepancies the published ETSI Group Specification takes precedence. Please report bugs to <https://forge.etsi.org/rep/nfv/SOL002-SOL003/issues>

Version information

Version : 1.5.0-impl:etsi.org:ETSI_NFV_OpenAPI:1

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 : /vnflcm/v1

Schemes : HTTPS

Consumes

- `application/json`

Produces

- `application/json`

External Docs

Description : ETSI GS NFV-SOL 003 V2.8.1

URL : https://www.etsi.org/deliver/etsi_gs/NFV-SOL/001_099/003/02.08.01_60/gs_NFV-SOL003v020801p.pdf

Paths

POST /api_versions

Description

This method is not supported. When this method is requested on this resource, the API producer shall return a "405 Method Not Allowed" response

Parameters

| Type | Name | Description | Schema |
|--------|-----------------------------------|--|--------|
| Header | Version <i>optional</i> | Version of the API requested to use when responding to this request. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |

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) |

GET /api_versions

Description

The GET method reads API version information. This method shall follow the provisions specified in table 4.6.3.3.2-1 for request and response data structures, and response codes. URI query parameters are not supported.

Parameters

| Type | Name | Description | Schema |
|---------------|-----------------------------------|--|--------|
| Header | Version <i>optional</i> | Version of the API requested to use when responding to this request. | string |

Responses

| HTTP Code | Description | Schema |
|------------|---|------------------------------|
| 200 | 200 OK API version information was read successfully. The response body shall contain 4.4 API version information, as defined in clause 4.4.1.13. Headers : Content-Type (string) : The MIME type of the body of the response. Version (string) : The used API version. | Response 200 |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 413 | <p>413 PAYLOAD TOO LARGE If the payload body of a request is larger than the amount of data the API producer is willing or able to process, it shall respond with this response code, following the provisions in IETF RFC 7231 for the use of the "Retry-After" HTTP header and for closing the connection. The "ProblemDetails" structure may be omitted.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 413 |
| 414 | <p>414 URI TOO LONG If the request URI of a request is longer than the API producer is willing or able to process, it shall respond with this response code. This condition can e.g. be caused by passing long queries in the request URI of a GET request. The "ProblemDetails" structure may be omitted.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 414 |
| 416 | <p>416 Range Not Satisfiable</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> <p>Version (string) : Version of the API used in the response.</p> | Response 416 |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 422 | <p>422 UNPROCESSABLE ENTITY If the payload body of a request contains syntactically correct data (e.g. well-formed JSON) but the data cannot be processed (e.g. because it fails validation against a schema), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. This error response code is only applicable for methods that have a request body.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 422</p> |
| 429 | <p>429 TOO MANY REQUESTS If the API consumer has sent too many requests in a defined period of time and the API producer is able to detect that condition ("rate limiting"), the API producer shall respond with this response code, following the provisions in IETF RFC 6585 [17] for the use of the "Retry-After" HTTP header. The "ProblemDetails" structure shall be provided and shall include in the "detail" attribute more information about the source of the problem. The period of time and allowed number of requests are configured within the API producer by means outside the scope of the present document.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 429</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| Name | Description | Schema |
|---------------------------------------|---|--|
| apiVersions <i>required</i> | Version(s) supported for the API signaled by the uriPrefix attribute. | < apiVersions > array |
| uriPrefix <i>required</i> | Specifies the URI prefix for the API, in the following form {apiRoot}/{apiName}/{apiMajorVersion}/. | string |

apiVersions

| Name | Description | Schema |
|--|--|--------------------|
| isDeprecated <i>optional</i> | If such information is available, this attribute indicates whether use of the version signaled by the version attribute is deprecated (true) or not (false). A deprecated version is still supported by the API producer but is recommended not to be used any longer. When a version is no longer supported, it does not appear in the response body. | boolean |
| retirementDate <i>optional</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| version <i>required</i> | Identifies a supported version. The value of the version attribute shall be a version identifier as specified in clause 9.1 (SOL013). | 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 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 413

| 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 414

| 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 422

| 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 429

| 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) |

Response 504

| 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) |

PUT /api_versions

Description

This method is not supported. When this method is requested on this resource, the API producer shall return a "405 Method Not Allowed" response

Parameters

| Type | Name | Description | Schema |
|---------------|-----------------------------------|--|--------|
| Header | Version <i>optional</i> | Version of the API requested to use when responding to this request. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |

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) |

DELETE /api_versions

Description

This method is not supported. When this method is requested on this resource, the API producer shall return a "405 Method Not Allowed" response

Parameters

| Type | Name | Description | Schema |
|--------|-----------------------------------|--|--------|
| Header | Version <i>optional</i> | Version of the API requested to use when responding to this request. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |

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) |

PATCH /api_versions

Description

This method is not supported. When this method is requested on this resource, the API producer shall return a "405 Method Not Allowed" response

Parameters

| Type | Name | Description | Schema |
|---------------|-----------------------------------|--|--------|
| Header | Version <i>optional</i> | Version of the API requested to use when responding to this request. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |

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) |

POST /subscriptions

Description

Subscribe. The POST method creates a new subscription. This method shall follow the provisions specified in the tables 5.4.18.3.1-1 and 5.4.18.3.1-2 for URI query parameters, request and response data structures, and response codes. As the result of successfully executing this method, a new "Individual subscription" resource as defined in clause 5.4.3 shall have been created. This method shall not trigger any notification. Creation of two "Individual subscription" resources with the same callback URI and the same filter can result in performance degradation and will provide duplicates of notifications to the NFVO, and might make sense only in very rare use cases. Consequently, the VNFM may either allow creating an "Individual subscription" resource if another "Individual subscription" resource with the same filter and callback URI already exists (in which case it shall return the "201 Created" response code), or may decide to not create a duplicate "Individual subscription" resource (in which case it shall return a "303 See Other" response code referencing the existing "Individual subscription" resource with the same filter and callback URI).

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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Body | LccnSubscriptionRequest <i>required</i> | Details of the subscription to be created. | LccnSubscriptionRequest |

LccnSubscriptionRequest

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

| Name | Description | Schema |
|---------------------------------------|--|------------------------|
| 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 VNF lifecycle changes. 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 |
|---|--|--|
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: * VnfLcmOperationOccurrenceNotification VnfIdentifierCreationNotification VnfIdentifierDeletionNotification The permitted values of the "notificationTypes" attribute are spelled exactly as the names of the notification types to facilitate automated code generation systems. | < enum (VnfLcmOperationOccurrenceNotification, VnfIdentifierCreationNotification, VnfIdentifierDeletionNotification) > array |
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular VNF lifecycle operation types for the notification of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, SCALE_TO_LEVEL, CHANGE_FLAVOUR, TERMINATE, HEAL, OPERATE, CHANGE_EXT_CONN, MODIFY_INFO) > array |
| vnfInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match VNF instances. | vnfInstanceSubscriptionFilter |

vnfInstanceSubscriptionFilter

| Name | Description | Schema |
|--|---|------------------|
| vnfInstanceIds <i>optional</i> | If present, match VNF instances with an instance identifier listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |

| Name | Description | Schema |
|--|--|--|
| vnfInstanceNames <i>optional</i> | If present, match VNF instances with a VNF Instance Name listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |
| vnfProductsFromProviders <i>optional</i> | If present, match VNF instances that belong to VNF products from certain providers. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < vnfProductsFromProviders > array |
| vnfdIds <i>optional</i> | If present, match VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |

vnfProductsFromProviders

| Name | Description | Schema |
|---------------------------------------|---|---------------------------------------|
| vnfProducts <i>optional</i> | If present, match VNF instances that belong to VNF products with certain product names, from one particular provider. | < vnfProducts > array |
| vnfProvider <i>required</i> | Name of the VNF provider to match. | string |

vnfProducts

| Name | Description | Schema |
|--|---|------------------------------------|
| versions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain versions and a certain product name, from one particular provider. | < versions > array |
| vnfProductName <i>required</i> | Name of the VNF product to match. | string |

versions

| Name | Description | Schema |
|--|--|------------------|
| vnfSoftwareVersion <i>required</i> | A version. | string |
| vnfdVersions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain VNFD versions, a certain software version and a certain product name, from one particular provider. | < string > array |

Responses

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 201 | <p>201 CREATED Shall be returned when the subscription has been created successfully. The response body shall contain a representation of the created "Individual subscription" resource. The HTTP response shall include a "Location" HTTP header that points to the created "Individual subscription" resource.</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 VNF 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> <p>Version (string) : Version of the API used in the response.</p> | Response 201 |
| 303 | <p>303 See Other</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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |
| 404 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 405 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 422 | <p>422 UNPROCESSABLE ENTITY If the payload body of a request contains syntactically correct data (e.g. well-formed JSON) but the data cannot be processed (e.g. because it fails validation against a schema), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. This error response code is only applicable for methods that have a request body.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 422 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 201

| 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 VNF lifecycle changes. 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 using an absolute URI. | self |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

filter

| Name | Description | Schema |
|---|---|---|
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: VnfLcmOperationOccurrenceNotification, VnfIdentifierCreationNotification, VnfIdentifierDeletionNotification. The permitted values of the "notificationTypes" attribute are spelled exactly as the names of the notification types to facilitate automated code generation systems. | < enum (VnfLcmOperationOccurrenceNotification, VnfIdentifierCreationNotification, VnfIdentifierDeletionNotification) > array |
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular VNF lifecycle operation types for the notification of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, SCALE_TO_LEVEL, CHANGE_FLAVOUR, TERMINATE, HEAL, OPERATE, CHANGE_EXT_CONN, MODIFY_INFO) > array |
| vnfInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match VNF instances. | vnfInstanceSubscriptionFilter |

vnfInstanceSubscriptionFilter

| Name | Description | Schema |
|--|--|--|
| vnfInstanceIds <i>optional</i> | If present, match VNF instances with an instance identifier listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |
| vnfInstanceNames <i>optional</i> | If present, match VNF instances with a VNF Instance Name listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |
| vnfProductsFromProviders <i>optional</i> | If present, match VNF instances that belong to VNF products from certain providers. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < vnfProductsFromProviders > array |
| vnfdIds <i>optional</i> | If present, match VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |

vnfProductsFromProviders

| Name | Description | Schema |
|---------------------------------------|---|---------------------------------------|
| vnfProducts <i>optional</i> | If present, match VNF instances that belong to VNF products with certain product names, from one particular provider. | < vnfProducts > array |
| vnfProvider <i>required</i> | Name of the VNF provider to match. | string |

vnfProducts

| Name | Description | Schema |
|--|---|------------------------------------|
| versions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain versions and a certain product name, from one particular provider. | < versions > array |
| vnfProductName <i>required</i> | Name of the VNF product to match. | string |

versions

| Name | Description | Schema |
|--|--|------------------|
| vnfSoftwareVersion <i>required</i> | A version. | string |
| vnfdVersions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain VNFD versions, a certain software version and a certain product name, from one particular provider. | < 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 |

| 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 422

| 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) |

Response 504

| 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) |

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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Query | filter <i>optional</i> | Attribute-based filtering expression according to clause 4.3.2. The VNFM shall support receiving this parameter as part of the URI query string. The NFVO may supply this parameter. All attribute names that appear in the LccnSubscription and in data types referenced from it shall be supported by the VNFM in the filter expression. | string |
| Query | nextpage_opaque_marker <i>optional</i> | Marker to obtain the next page of a paged response. Shall be supported by the VNFM if the VNFM supports alternative 2 (paging) according to clause 4.7.2.1 for this resource. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 200 | <p>200 OK Shall be returned when the list of subscriptions has been queried successfully. The response body shall contain in an array the representations of all active subscriptions of the functional block that invokes the method, i.e. zero or more representations of lifecycle change notification subscriptions as defined in clause 5.5.2.16. If the "filter" URI parameter was supplied in the request, the data in the response body shall have been transformed according to the rules specified in clause 5.2.2 of ETSI GS NFV-SOL 013. If the VNFM supports alternative 2 (paging) according to clause 5.4.7.2.1 of ETSI GS NFV-SOL 013 for this resource, inclusion of the Link HTTP header in this response shall follow the provisions in clause 4.7.2.3.5.4.2.3 of ETSI GS NFV-SOL 013.</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> <p>Version (string) : Version of the API used in the response.</p> <p>Link (string) : Reference to other resources. Used for paging in the present document, see clause 4.7.2.1.</p> | Response 200 |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| 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 VNF lifecycle changes. 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 using an absolute URI. | self |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

filter

| Name | Description | Schema |
|---|--|--|
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: * VnfLcmOperationOccurrenceNotification VnfIdentifierCreationNotification VnfIdentifierDeletionNotification The permitted values of the "notificationTypes" attribute are spelled exactly as the names of the notification types to facilitate automated code generation systems. | < enum (VnfLcmOperationOccurrenceNotification, VnfIdentifierCreationNotification, VnfIdentifierDeletionNotification) > array |
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular VNF lifecycle operation types for the notification of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, SCALE_TO_LEVEL, CHANGE_FLAVOUR, TERMINATE, HEAL, OPERATE, CHANGE_EXT_CONN, MODIFY_INFO) > array |
| vnfInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match VNF instances. | vnfInstanceSubscriptionFilter |

vnfInstanceSubscriptionFilter

| Name | Description | Schema |
|--|---|------------------|
| vnfInstanceIds <i>optional</i> | If present, match VNF instances with an instance identifier listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |

| Name | Description | Schema |
|--|--|--|
| vnfInstanceNames <i>optional</i> | If present, match VNF instances with a VNF Instance Name listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |
| vnfProductsFromProviders <i>optional</i> | If present, match VNF instances that belong to VNF products from certain providers. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < vnfProductsFromProviders > array |
| vnfdIds <i>optional</i> | If present, match VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |

vnfProductsFromProviders

| Name | Description | Schema |
|---------------------------------------|---|---------------------------------------|
| vnfProducts <i>optional</i> | If present, match VNF instances that belong to VNF products with certain product names, from one particular provider. | < vnfProducts > array |
| vnfProvider <i>required</i> | Name of the VNF provider to match. | string |

vnfProducts

| Name | Description | Schema |
|--|---|------------------------------------|
| versions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain versions and a certain product name, from one particular provider. | < versions > array |
| vnfProductName <i>required</i> | Name of the VNF product to match. | string |

versions

| Name | Description | Schema |
|--|--|------------------|
| vnfSoftwareVersion <i>required</i> | A version. | string |
| vnfdVersions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain VNFD versions, a certain software version and a certain product name, from one particular provider. | < 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 |
| 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 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) |

Response 504

| 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) |

GET /subscriptions/{subscriptionId}

Description

Query Subscription Information. The GET method retrieves information about a subscription by reading an "Individual subscription" resource. This method shall follow the provisions specified in the tables 5.4.19.3.2-1 and 5.4.19.3.2-2 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 | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | subscriptionId <i>required</i> | Identifier of this subscription. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new subscription resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 200 | <p>200 OK Shall be returned when information about an individual subscription has been read successfully. The response body shall contain a representation of the "Individual subscription" resource.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 200 |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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. Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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. Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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. Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| 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 VNF lifecycle changes. 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 using an absolute URI. | self |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

filter

| Name | Description | Schema |
|---|--|--|
| notificationTypes <i>optional</i> | Match particular notification types. Permitted values: * VnfLcmOperationOccurrenceNotification VnfIdentifierCreationNotification VnfIdentifierDeletionNotification The permitted values of the "notificationTypes" attribute are spelled exactly as the names of the notification types to facilitate automated code generation systems. | < enum (VnfLcmOperationOccurrenceNotification, VnfIdentifierCreationNotification, VnfIdentifierDeletionNotification) > array |
| operationStates <i>optional</i> | Match particular LCM operation state values as reported in notifications of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) > array |
| operationTypes <i>optional</i> | Match particular VNF lifecycle operation types for the notification of type VnfLcmOperationOccurrenceNotification. May be present if the "notificationTypes" attribute contains the value "VnfLcmOperationOccurrenceNotification", and shall be absent otherwise. | < enum (INSTANTIATE, SCALE, SCALE_TO_LEVEL, CHANGE_FLAVOUR, TERMINATE, HEAL, OPERATE, CHANGE_EXT_CONN, MODIFY_INFO) > array |
| vnfInstanceSubscriptionFilter <i>optional</i> | This type represents subscription filter criteria to match VNF instances. | vnfInstanceSubscriptionFilter |

vnfInstanceSubscriptionFilter

| Name | Description | Schema |
|--|---|------------------|
| vnfInstanceIds <i>optional</i> | If present, match VNF instances with an instance identifier listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |

| Name | Description | Schema |
|--|--|--|
| vnfInstanceNames <i>optional</i> | If present, match VNF instances with a VNF Instance Name listed in this attribute. The attributes "vnfInstanceIds" and "vnfInstanceNames" are alternatives to reference to particular VNF Instances in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |
| vnfProductsFromProviders <i>optional</i> | If present, match VNF instances that belong to VNF products from certain providers. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < vnfProductsFromProviders > array |
| vnfdIds <i>optional</i> | If present, match VNF instances that were created based on a VNFD identified by one of the vnfdId values listed in this attribute. The attributes "vnfdIds" and "vnfProductsFromProviders" are alternatives to reference to VNF instances that are based on certain VNFDs in a filter. They should not be used both in the same filter instance, but one alternative should be chosen. | < string > array |

vnfProductsFromProviders

| Name | Description | Schema |
|---------------------------------------|---|---------------------------------------|
| vnfProducts <i>optional</i> | If present, match VNF instances that belong to VNF products with certain product names, from one particular provider. | < vnfProducts > array |
| vnfProvider <i>required</i> | Name of the VNF provider to match. | string |

vnfProducts

| Name | Description | Schema |
|--|---|------------------------------------|
| versions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain versions and a certain product name, from one particular provider. | < versions > array |
| vnfProductName <i>required</i> | Name of the VNF product to match. | string |

versions

| Name | Description | Schema |
|--|--|------------------|
| vnfSoftwareVersion <i>required</i> | A version. | string |
| vnfdVersions <i>optional</i> | If present, match VNF instances that belong to VNF products with certain VNFD versions, a certain software version and a certain product name, from one particular provider. | < 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 |
| 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 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) |

Response 504

| 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) |

DELETE /subscriptions/{subscriptionId}

Description

Terminate Subscription. The DELETE method terminates an individual subscription. This method shall follow the provisions specified in the tables 5.4.19.3.5-1 and 5.4.19.3.5-2 for URI query parameters, request and response data structures, and response codes. As the result of successfully

executing this method, the "Individual subscription" resource shall not exist any longer. This means that no notifications for that subscription shall be sent to the formerly-subscribed API consumer. NOTE: Due to race conditions, some notifications might still be received by the formerly-subscribed API consumer for a certain time period after the deletion.

Parameters

| Type | Name | Description | Schema |
|--------|--|---|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | subscriptionId <i>required</i> | Identifier of this subscription. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new subscription resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 204 | <p>204 NO CONTENT Shall be returned when the "Individual subscription" resource has been deleted successfully. The response body shall be empty.</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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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) |

Response 504

| 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) |

POST /vnf_instances

Description

The POST method creates a new VNF instance resource based on a VNF package that is onboarded and in "ENABLED" 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 |
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |

| Type | Name | Description | Schema |
|--------|--|--|----------------------------------|
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Body | createVnfRequest <i>required</i> | The VNF creation parameters | createVnfRequest |

createVnfRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| 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 |
| vnfdId <i>required</i> | An identifier with the intention of being globally unique. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 201 | <p>201 CREATED Shall be returned when a new "Individual VNF instance" resource and the associated VNF instance identifier has been created successfully. The response body shall contain a representation of the created VNF instance, as defined in clause 5.5.2.2. The HTTP response shall include a "Location" HTTP header that contains the resource URI of the created VNF instance.</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 VNF 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> <p>Version (string) : Version of the API used in the response.</p> | Response 201 |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 422 | <p>422 UNPROCESSABLE ENTITY If the payload body of a request contains syntactically correct data (e.g. well-formed JSON) but the data cannot be processed (e.g. because it fails validation against a schema), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. This error response code is only applicable for methods that have a request body.</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. Version (string) : Version of the API used in the response.</p> | <p>Response 422</p> |
| 500 | <p>500 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. 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. Version (string) : Version of the API used in the response.</p> | <p>Response 500</p> |
| 503 | <p>503 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 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. 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. Version (string) : Version of the API used in the response.</p> | <p>Response 503</p> |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 201

| Name | Description | Schema |
|---|---|--|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectio nInfo <i>optional</i> | Information about VIM connections to be used for managing the resources for the VNF instance. This attribute shall only be supported and present if VNF-related resource management in direct mode is applicable. This attribute can be modified with the PATCH method. | < vimConnectionInfo > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfInstanceN ame <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfProductNa me <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 |
| vnfSoftwareV ersion <i>required</i> | A version. | string |

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

links

| Name | Description | Schema |
|---|--|-------------------------------|
| changeExtConn <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeExtConn |
| changeFlavour <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeFlavour |
| heal <i>optional</i> | This type represents a link to a resource using an absolute URI. | heal |
| indicators <i>optional</i> | This type represents a link to a resource using an absolute URI. | indicators |
| instantiate <i>optional</i> | This type represents a link to a resource using an absolute URI. | instantiate |
| operate <i>optional</i> | This type represents a link to a resource using an absolute URI. | operate |
| scale <i>optional</i> | This type represents a link to a resource using an absolute URI. | scale |
| scaleToLevel <i>optional</i> | This type represents a link to a resource using an absolute URI. | scaleToLevel |
| self <i>required</i> | This type represents a link to a resource using an absolute URI. | self |
| terminate <i>optional</i> | This type represents a link to a resource using an absolute URI. | terminate |

changeExtConn

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

changeFlavour

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

heal

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

indicators

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

instantiate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

operate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scale

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scaleToLevel

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

terminate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | 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> | An identifier that is unique within a VNF descriptor. | 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 |

| Name | Description | Schema |
|--|---|--|
| maxScaleLevels <i>optional</i> | Maximum allowed scale levels of the VNF, one entry per aspect. This attribute shall be present if the VNF supports scaling. | < maxScaleLevels > array |
| 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. This attribute shall be present if the VNF supports scaling. See clause B.2 for an explanation of VNF scaling. | < 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> | STARTED: The VNF instance is up and running. STOPPED: The VNF instance has been shut down. | 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 |
|--|--|--|
| associatedVnfVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| associatedVnfcCpId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| cpProtocolInfo <i>required</i> | Network protocol information for this CP. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

cpProtocolInfo

| Name | Description | Schema |
|--|--|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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>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 |
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

maxScaleLevels

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |

monitoringParameters

| Name | Description | Schema |
|--|--|--------|
| id <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| performance Metric <i>required</i> | Performance metric that is monitored. This attribute shall contain the related "Measurement Name" value as defined in clause 7.2 of ETSI GS NFV-IFA 027. | string |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| Name | Description | Schema |
|--|---|--------------------------------|
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | 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 exposed as an external CP of the VNF instance or is connected to an external CP of the VNF instance. See note 2. May be present otherwise. NOTE 2: A VNFC CP is "connected to" an external CP if the VNFC CP is connected to an internal VL that exposes an external CP. A VNFC CP is "exposed as" an external CP if it is connected directly to an external VL. | < vnfcCpInfo > array |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | string |

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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

vnfcCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. May be omitted if the VNFC CP is exposed as an external CP. See note 3. NOTE 3: The information can be omitted because it is already available as part of the external CP information. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| 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>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|---------------------------------------|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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) |

| 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) |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|---|--------|
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | 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 |
| 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 422

| 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) |

Response 504

| 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) |

GET /vnf_instances

Description

Query VNF. The GET method queries information about multiple VNF instances.

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 | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |

| Type | Name | Description | Schema |
|-------|--|--|--------|
| Query | all_fields <i>optional</i> | Include all complex attributes in the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM shall support this parameter. | string |
| Query | exclude_default <i>optional</i> | Indicates to exclude the following complex attributes from the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM shall support this parameter. The following attributes shall be excluded from the VnfInstance structure in the response body if this parameter is provided, or none of the parameters "all_fields", "fields", "exclude_fields", "exclude_default" are provided: - vnfConfigurableProperties - vimConnectionInfo - instantiatedVnfInfo - metadata - extensions | string |
| Query | exclude_fields <i>optional</i> | Complex attributes to be included into the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM should support this parameter. | string |
| Query | fields <i>optional</i> | Complex attributes to be included into the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM should support this parameter. | string |
| Query | filter <i>optional</i> | Attribute-based filtering expression according to clause 5.2 of ETSI GS NFV-SOL 013. The VNFM shall support receiving this parameter as part of the URI query string. The NFVO may supply this parameter. All attribute names that appear in the VnfInstance and in data types referenced from it shall be supported by the VNFM in the filter expression. | string |
| Query | nextpage_opaque_marker <i>optional</i> | Marker to obtain the next page of a paged response. Shall be supported by the VNFM if the VNFM supports alternative 2 (paging) according to clause 5.4.2.1 of ETSI GS NFV-SOL 013 for this resource. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|---|
| 200 | <p>200 OK Shall be returned when information about zero or more VNF instances has been queried successfully. The response body shall contain in an array the representations of zero or more VNF instances, as defined in clause 5.5.2.2. If the "filter" URI parameter or one of the "all_fields", "fields" (if supported), "exclude_fields" (if supported) or "exclude_default" URI parameters was supplied in the request, the data in the response body shall have been transformed according to the rules specified in clauses 5.2.2 and 5.3.2 of ETSI GS NFV-SOL 013, respectively. If the VNFM supports alternative 2 (paging) according to clause 5.4.7.2.1 of ETSI GS NFV-SOL 013 for this resource, inclusion of the Link HTTP header in this response shall follow the provisions in clause 4.7.2.3.5.4.2.3 of ETSI GS NFV-SOL 013.</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> <p>Version (string) : Version of the API used in the response.</p> <p>Link (string) : Reference to other resources. Used for paging in the present document, see clause 4.7.2.1.</p> | < Response 200 > array |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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. Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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. Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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. Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 416 | <p>416 Range Not Satisfiable</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> <p>Version (string) : Version of the API used in the response.</p> | Response 416 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| Name | Description | Schema |
|---|---|--|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectio nInfo <i>optional</i> | Information about VIM connections to be used for managing the resources for the VNF instance. This attribute shall only be supported and present if VNF-related resource management in direct mode is applicable. This attribute can be modified with the PATCH method. | < vimConnectionInfo > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfInstanceN ame <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfProductNa me <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 |
| vnfSoftwareV ersion <i>required</i> | A version. | string |

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

links

| Name | Description | Schema |
|---|--|-------------------------------|
| changeExtConn <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeExtConn |
| changeFlavour <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeFlavour |
| heal <i>optional</i> | This type represents a link to a resource using an absolute URI. | heal |
| indicators <i>optional</i> | This type represents a link to a resource using an absolute URI. | indicators |
| instantiate <i>optional</i> | This type represents a link to a resource using an absolute URI. | instantiate |
| operate <i>optional</i> | This type represents a link to a resource using an absolute URI. | operate |
| scale <i>optional</i> | This type represents a link to a resource using an absolute URI. | scale |
| scaleToLevel <i>optional</i> | This type represents a link to a resource using an absolute URI. | scaleToLevel |
| self <i>required</i> | This type represents a link to a resource using an absolute URI. | self |
| terminate <i>optional</i> | This type represents a link to a resource using an absolute URI. | terminate |

changeExtConn

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

changeFlavour

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

heal

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

indicators

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

instantiate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

operate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scale

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scaleToLevel

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

terminate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | 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> | An identifier that is unique within a VNF descriptor. | 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 |

| Name | Description | Schema |
|--|---|--|
| maxScaleLevels <i>optional</i> | Maximum allowed scale levels of the VNF, one entry per aspect. This attribute shall be present if the VNF supports scaling. | < maxScaleLevels > array |
| 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. This attribute shall be present if the VNF supports scaling. See clause B.2 for an explanation of VNF scaling. | < 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> | STARTED: The VNF instance is up and running. STOPPED: The VNF instance has been shut down. | 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 |
|--|--|--|
| associatedVnfVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| associatedVnfcCpId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| cpProtocolInfo <i>required</i> | Network protocol information for this CP. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

cpProtocolInfo

| Name | Description | Schema |
|--|--|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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>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 |
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

maxScaleLevels

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |

monitoringParameters

| Name | Description | Schema |
|--|--|--------|
| id <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| performance Metric <i>required</i> | Performance metric that is monitored. This attribute shall contain the related "Measurement Name" value as defined in clause 7.2 of ETSI GS NFV-IFA 027. | string |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| Name | Description | Schema |
|--|---|--------------------------------|
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | 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 exposed as an external CP of the VNF instance or is connected to an external CP of the VNF instance. See note 2. May be present otherwise. NOTE 2: A VNFC CP is "connected to" an external CP if the VNFC CP is connected to an internal VL that exposes an external CP. A VNFC CP is "exposed as" an external CP if it is connected directly to an external VL. | < vnfcCpInfo > array |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | string |

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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

vnfcCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. May be omitted if the VNFC CP is exposed as an external CP. See note 3. NOTE 3: The information can be omitted because it is already available as part of the external CP information. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| 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>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|---------------------------------------|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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) |

| 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) |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|---|--------|
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | 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 |
| 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 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 |

| 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) |

Response 504

| 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) |

GET /vnf_instances/{vnfInstanceId}

Description

Query VNF. The GET method retrieves information about a VNF instance by reading an "Individual VNF instance" resource. This method shall follow the provisions specified in the tables 5.4.3.3.2-1 and 5.4.3.3.2-2 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 |
|--------|---|--|--------|
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 200 | <p>200 OK Shall be returned when information about an individual VNF instance has been read successfully. The response body shall contain a representation of the VNF instance, as defined in clause 5.5.2.2.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 200 |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 416 | <p>416 Range Not Satisfiable</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 416</p> |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 500</p> |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 503</p> |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| Name | Description | Schema |
|---|---|--|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectio nInfo <i>optional</i> | Information about VIM connections to be used for managing the resources for the VNF instance. This attribute shall only be supported and present if VNF-related resource management in direct mode is applicable. This attribute can be modified with the PATCH method. | < vimConnectionInfo > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfInstanceN ame <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfProductNa me <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 |
| vnfSoftwareV ersion <i>required</i> | A version. | string |

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

links

| Name | Description | Schema |
|---|--|-------------------------------|
| changeExtConn <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeExtConn |
| changeFlavour <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeFlavour |
| heal <i>optional</i> | This type represents a link to a resource using an absolute URI. | heal |
| indicators <i>optional</i> | This type represents a link to a resource using an absolute URI. | indicators |
| instantiate <i>optional</i> | This type represents a link to a resource using an absolute URI. | instantiate |
| operate <i>optional</i> | This type represents a link to a resource using an absolute URI. | operate |
| scale <i>optional</i> | This type represents a link to a resource using an absolute URI. | scale |
| scaleToLevel <i>optional</i> | This type represents a link to a resource using an absolute URI. | scaleToLevel |
| self <i>required</i> | This type represents a link to a resource using an absolute URI. | self |
| terminate <i>optional</i> | This type represents a link to a resource using an absolute URI. | terminate |

changeExtConn

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

changeFlavour

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

heal

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

indicators

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

instantiate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

operate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scale

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scaleToLevel

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

terminate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | 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> | An identifier that is unique within a VNF descriptor. | 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 |

| Name | Description | Schema |
|--|---|--|
| maxScaleLevels <i>optional</i> | Maximum allowed scale levels of the VNF, one entry per aspect. This attribute shall be present if the VNF supports scaling. | < maxScaleLevels > array |
| 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. This attribute shall be present if the VNF supports scaling. See clause B.2 for an explanation of VNF scaling. | < 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> | STARTED: The VNF instance is up and running. STOPPED: The VNF instance has been shut down. | 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 |
|--|--|--|
| associatedVnfVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| associatedVnfcCpId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| cpProtocolInfo <i>required</i> | Network protocol information for this CP. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

cpProtocolInfo

| Name | Description | Schema |
|--|--|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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>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 |
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

maxScaleLevels

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |

monitoringParameters

| Name | Description | Schema |
|--|--|--------|
| id <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| performance Metric <i>required</i> | Performance metric that is monitored. This attribute shall contain the related "Measurement Name" value as defined in clause 7.2 of ETSI GS NFV-IFA 027. | string |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| Name | Description | Schema |
|--|---|--------------------------------|
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | 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 exposed as an external CP of the VNF instance or is connected to an external CP of the VNF instance. See note 2. May be present otherwise. NOTE 2: A VNFC CP is "connected to" an external CP if the VNFC CP is connected to an internal VL that exposes an external CP. A VNFC CP is "exposed as" an external CP if it is connected directly to an external VL. | < vnfcCpInfo > array |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | string |

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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

vnfcCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. May be omitted if the VNFC CP is exposed as an external CP. See note 3. NOTE 3: The information can be omitted because it is already available as part of the external CP information. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| 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>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|---------------------------------------|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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) |

| 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) |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|---|--------|
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | 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 |
| 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 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 |

| 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) |

Response 504

| 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) |

DELETE /vnf_instances/{vnfInstanceId}

Description

Delete VNF Identifier. This method deletes an "Individual VNF instance" resource. This method shall follow the provisions specified in the tables 5.4.3.3.5-1 and 5.4.3.3.5-2 for URI query parameters, request and response data structures, and response codes. As the result of successfully executing this method, the "Individual VNF instance" resource shall not exist any longer. A notification of type "VnfIdentifierDeletionNotification" shall be triggered as part of successfully executing this method as defined in clause 5.5.2.19.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |

| Type | Name | Description | Schema |
|------|---|--|--------|
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 204 | <p>204 NO CONTENT Shall be returned when the "Individual VNF instance" resource and the associated VNF identifier were deleted successfully. The response body shall be empty.</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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 412 | <p>412 PRECONDITION FAILED Error: 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 412 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in 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 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 |

| 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) |

PATCH /vnf_instances/{vnfInstanceId}

Description

Modify VNF Information. This method modifies an "Individual VNF instance" resource. Changes to the VNF configurable properties are applied to the configuration in the VNF instance, and are reflected in the representation of this resource. Other changes are applied to the VNF instance

information managed by the VNFM, and are reflected in the representation of this resource. This method shall follow the provisions specified in the tables 5.4.3.3.4-1 and 5.4.3.3.4-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2.

Parameters

| 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 Content-Type header shall be set to "application/merge-patch+json" according to IETF RFC 7396. | enum (application/merge-patch+json) |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | VnfInfoModificationRequest <i>required</i> | Parameters for the VNF modification, as defined in clause 5.5.2.12. The Content-Type header shall be set to "application/merge-patch+json" according to IETF RFC 7396. | VnfInfoModificationRequest |

VnfInfoModificationRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectionInfo <i>optional</i> | New content of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance", as defined below this table. | < vimConnectionInfo > array |
| vimConnectionInfoDeleteIds <i>optional</i> | List of identifiers entries to be deleted from the "vimConnectionInfo" attribute array in "VnfInstance", to be used as "deleteIdList" as defined below this table. | < string > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDescription <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfInstanceName <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfPkgId <i>optional</i> | An identifier with the intention of being globally unique. | string |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. On success, the HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "Individual VNF LCM operation occurrence" resource corresponding to the operation. The response body shall be empty.</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 VNF 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>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 412 | <p>412 PRECONDITION FAILED Error: 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 412 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

Response 202

| Name | Description | Schema |
|---|---|--|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectio nInfo <i>optional</i> | Information about VIM connections to be used for managing the resources for the VNF instance. This attribute shall only be supported and present if VNF-related resource management in direct mode is applicable. This attribute can be modified with the PATCH method. | < vimConnectionInfo > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDe scription <i>optional</i> | Human-readable description of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfInstanceN ame <i>optional</i> | Name of the VNF instance. This attribute can be modified with the PATCH method. | string |
| vnfProductNa me <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 |
| vnfSoftwareV ersion <i>required</i> | A version. | string |

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

links

| Name | Description | Schema |
|---|--|-------------------------------|
| changeExtConn <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeExtConn |
| changeFlavour <i>optional</i> | This type represents a link to a resource using an absolute URI. | changeFlavour |
| heal <i>optional</i> | This type represents a link to a resource using an absolute URI. | heal |
| indicators <i>optional</i> | This type represents a link to a resource using an absolute URI. | indicators |
| instantiate <i>optional</i> | This type represents a link to a resource using an absolute URI. | instantiate |
| operate <i>optional</i> | This type represents a link to a resource using an absolute URI. | operate |
| scale <i>optional</i> | This type represents a link to a resource using an absolute URI. | scale |
| scaleToLevel <i>optional</i> | This type represents a link to a resource using an absolute URI. | scaleToLevel |
| self <i>required</i> | This type represents a link to a resource using an absolute URI. | self |
| terminate <i>optional</i> | This type represents a link to a resource using an absolute URI. | terminate |

changeExtConn

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

changeFlavour

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

heal

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

indicators

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

instantiate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

operate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scale

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

scaleToLevel

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

terminate

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | 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> | An identifier that is unique within a VNF descriptor. | 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 |

| Name | Description | Schema |
|--|---|---|
| maxScaleLevels <i>optional</i> | Maximum allowed scale levels of the VNF, one entry per aspect. This attribute shall be present if the VNF supports scaling. | < maxScaleLevels > array |
| 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. This attribute shall be present if the VNF supports scaling. See clause B.2 for an explanation of VNF scaling. | < 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> | STARTED: The VNF instance is up and running. STOPPED: The VNF instance has been shut down. | 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 |
|--|--|---|
| associatedVnfVirtualLinkId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| associatedVnfcCpId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| cpProtocolInfo <i>required</i> | Network protocol information for this CP. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

cpProtocolInfo

| Name | Description | Schema |
|--|--|--------------------------------|
| ipOverEthernet <i>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|--|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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>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 |
| vnfLinkPorts <i>optional</i> | Link ports of this VL. | < vnfLinkPorts > array |
| vnfVirtualLinkDescId <i>required</i> | An identifier that is unique for the respective type within a VNF instance, but may not be globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

maxScaleLevels

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |

monitoringParameters

| Name | Description | Schema |
|--|--|--------|
| id <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| name <i>optional</i> | Human readable name of the monitoring parameter, as defined in the VNFD. | string |
| performance Metric <i>required</i> | Performance metric that is monitored. This attribute shall contain the related "Measurement Name" value as defined in clause 7.2 of ETSI GS NFV-IFA 027. | string |

scaleStatus

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| Name | Description | Schema |
|--|---|--------------------------------|
| cpInstanceType <i>optional</i> | Type of the CP instance that is identified by cpInstanceId. Shall be present if "cpInstanceId" is present, and shall be absent otherwise. Permitted values: VNFC_CP: The link port is connected to a VNFC CP EXT_CP: The link port is associated to an external CP. | enum (VNFC_CP, EXT_CP) |
| 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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> | An identifier that is unique within a VNF descriptor. | 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 exposed as an external CP of the VNF instance or is connected to an external CP of the VNF instance. See note 2. May be present otherwise. NOTE 2: A VNFC CP is "connected to" an external CP if the VNFC CP is connected to an internal VL that exposes an external CP. A VNFC CP is "exposed as" an external CP if it is connected directly to an external VL. | < vnfcCpInfo > array |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | string |

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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

vnfcCpInfo

| Name | Description | Schema |
|--|--|--|
| cpProtocolInfo <i>optional</i> | Network protocol information for this CP. May be omitted if the VNFC CP is exposed as an external CP. See note 3. NOTE 3: The information can be omitted because it is already available as part of the external CP information. | < cpProtocolInfo > array |

| Name | Description | Schema |
|---|---|--------|
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| 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>optional</i> | This type represents information about a network address that has been assigned. | ipOverEthernet |
| layerProtocol <i>required</i> | The identifier of layer(s) and protocol(s) associated to the network address information. Permitted values: IP_OVER_ETHERNET This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | enum (IP_OVER_ETHERNET) |

ipOverEthernet

| Name | Description | Schema |
|---------------------------------------|--|---------------------------------------|
| ipAddresses <i>optional</i> | Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet. At least one of "macAddress" or "ipAddresses" shall be present. | < 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 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). Exactly one of "addresses" or "addressRange" shall be present. | < 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) |

| 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) |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|---|--------|
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | 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 |
| 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) |

POST /vnf_instances/{vnfInstanceId}/change_ext_conn

Description

Change External VNF Connectivity. The POST method changes the external connectivity of a VNF instance. This method shall follow the provisions specified in the tables 5.4.11.3.1-1 and 5.4.11.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2.

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 |

| Type | Name | Description | Schema |
|--------|---|---|---|
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance of which the external connectivity is requested to be changed. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new "Individual VNF instance" resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | ChangeExtVnfConnectivityRequest <i>required</i> | Parameters for the Change external VNF connectivity operation. | ChangeExtVnfConnectivityRequest |

ChangeExtVnfConnectivityRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extVirtualLinks <i>required</i> | Information about external VLs to change (e.g. connect the VNF to). Entries in the list of external VLs that are unchanged need not be supplied as part of this request. | < extVirtualLinks > array |
| vimConnectionInfo <i>optional</i> | Information about VIM connections to be used for managing the resources for the VNF instance, or refer to external virtual links. This attribute shall only be supported and may be present if VNF-related resource management in direct mode is applicable. | < vimConnectionInfo > array |

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. If this attribute is not present, the VNFM shall create the link ports on the external VL. | < extLinkPorts > array |
| id <i>required</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 |
| vimConnectionId <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 |
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 |

| Name | Description | Schema |
|--|---|---|
| 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": 1) The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. 2) At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. 3) If the "linkPortId" attribute is absent, the VNFM shall create a link port. 4) 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. 5) 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 |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | 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) |

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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

vimConnectionInfo

| Name | Description | Schema |
|--------------------------------------|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

| Name | Description | Schema |
|---|---|--------|
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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. Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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. Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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. Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_instances/{vnfInstanceId}/change_flavour

Description

Change VNF Flavour. This method shall follow the provisions specified in the tables 5.4.7.3.1-1 and 5.4.7.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2. In addition, once the VNFM has successfully completed the underlying VNF LCM operation occurrence, it shall set the "flavourId" attribute in the representation of the "Individual VNF instance" resource to the value of the "newFlavourId" attribute passed in the "ChangeVnfFlavourRequest" data in the POST request.

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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | The identifier of the VNF instance of which the deployment flavour is requested to be changed. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new "Individual VNF instance" resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | ChangeVnfFlavourRequest <i>required</i> | Parameters for the Change VNF Flavour operation. | ChangeVnfFlavourRequest |

ChangeVnfFlavourRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extManagedVirtualLinks <i>optional</i> | Information about internal VLs that are managed by the NFVO. NOTE: The indication of externally-managed internal VLs is needed in case networks have been pre-configured for use with certain VNFs, for instance to ensure that these networks have certain properties such as security or acceleration features, or to address particular network topologies. The present document assumes that externally-managed internal VLs are managed by the NFVO and created towards the VIM. | < extManagedVirtualLinks > array |

| Name | Description | Schema |
|---|---|--|
| extVirtualLinks <i>optional</i> | Information about external VLs to connect the VNF to. Entries in the list of external VLs that are unchanged need not be supplied as part of this request. | < extVirtualLinks > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| instantiationLevelId <i>optional</i> | An identifier that is unique within a VNF descriptor. | string |
| newFlavourId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| vimConnectionInfo <i>optional</i> | Information about VIM connections to be used for managing the resources for the VNF instance, or refer to external / externally-managed virtual links. This attribute shall only be supported and may be present if VNF-related resource management in direct mode is applicable. | < vimConnectionInfo > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

extManagedVirtualLinks

| Name | Description | Schema |
|------------------------------|--|--------|
| id <i>required</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 |
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfVirtualLinkDescId <i>optional</i> | An identifier that is unique within a VNF descriptor. | 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. If this attribute is not present, the VNFM shall create the link ports on the external VL. | < extLinkPorts > array |
| id <i>required</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 |
| vimConnectionId <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 |
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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": 1) The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. 2) At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. 3) If the "linkPortId" attribute is absent, the VNFM shall create a link port. 4) 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. 5) 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). This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|-----------------------------------|---|--------|
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | string |

Responses

| HTTP Code | Description | Schema |
|------------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_instances/{vnfInstanceId}/heal

Description

Heal VNF. The POST method requests to heal a VNF instance. This method shall follow the provisions specified in the tables 5.4.9.3.1-1 and 5.4.9.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2.

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 |

| Type | Name | Description | Schema |
|--------|--|--|--------------------------------|
| Header | Content-Type <i>required</i> | The MIME type of the body of the request. Reference: IETF RFC 7231 | string |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance to be healed. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new "Individual VNF instance" resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | HealVnfRequest <i>required</i> | Parameters for the Heal VNF operation. | HealVnfRequest |

HealVnfRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| cause <i>optional</i> | A string defined in IETF RFC 8259. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_instances/{vnfInstanceId}/instantiate

Description

Instantiate VNF. The POST method instantiates a VNF instance. This method shall follow the provisions specified in the tables 5.4.4.3.1-1 and 5.4.4.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2. In addition, once the VNFM has successfully completed the underlying VNF LCM operation occurrence, it shall set the "instantiationState" attribute to the value "INSTANTIATED" and the "vnfState" attribute to the value "STARTED" in the representation of the "Individual VNF 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 |

| 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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | InstantiateVnfRequest <i>required</i> | Parameters for the VNF instantiation. | InstantiateVnfRequest |

InstantiateVnfRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extManagedVirtualLinks <i>optional</i> | Information about internal VLs that are managed by the NFVO. NOTE: The indication of externally-managed internal VLs is needed in case networks have been pre-configured for use with certain VNFs, for instance to ensure that these networks have certain properties such as security or acceleration features, or to address particular network topologies. The present document assumes that externally-managed internal VLs are managed by the NFVO and created towards the VIM. | < extManagedVirtualLinks > array |

| Name | Description | Schema |
|---|---|--|
| extVirtualLinks <i>optional</i> | Information about external VLS to connect the VNF to. | < extVirtualLinks > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| flavourId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| instantiationLevelId <i>optional</i> | An identifier that is unique within a VNF descriptor. | string |
| localizationLanguage <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vimConnectionInfo <i>optional</i> | Information about VIM connections to be used for managing the resources for the VNF instance, or refer to external / externally-managed virtual links. This attribute shall only be supported and may be present if VNF-related resource management in direct mode is applicable. | < vimConnectionInfo > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

extManagedVirtualLinks

| Name | Description | Schema |
|--|--|--------|
| id <i>required</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 |
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfVirtualLinkDescId <i>optional</i> | An identifier that is unique within a VNF descriptor. | 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. If this attribute is not present, the VNFM shall create the link ports on the external VL. | < extLinkPorts > array |
| id <i>required</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 |

| Name | Description | Schema |
|---|--|--------|
| vimConnectionId <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 |
| cpdId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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": 1) The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. 2) At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. 3) If the "linkPortId" attribute is absent, the VNFM shall create a link port. 4) 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. 5) 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 |
| layerProtocol <i>required</i> | Identifier of layer(s) and protocol(s). This attribute allows to signal the addition of further types of layer and protocol in future versions of the present document in a backwards-compatible way. In the current version of the present document, only IP over Ethernet is supported. | 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) |

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 |

| Name | Description | Schema |
|--|---|--------|
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

| Name | Description | Schema |
|-----------------------------------|---|--------|
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | string |

Responses

| HTTP Code | Description | Schema |
|------------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "Individual VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 409</p> |
| 416 | <p>416 Range Not Satisfiable</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 416</p> |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 500</p> |

| HTTP Code | Description | Schema |
|-----------|---|--------------|
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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) |

Response 504

| 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) |

POST /vnf_instances/{vnfInstanceId}/operate

Description

Operate VNF. The POST method changes the operational state of a VNF instance resource. This method shall follow the provisions specified in the tables 5.4.10.3.1-1 and 5.4.10.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions

that apply as the result of successfully executing this method are specified in clause 5.4.1.2. In addition, once the VNFM has successfully completed the underlying VNF LCM operation occurrence, it shall set the "vnfState" attribute in the representation of the "Individual VNF instance" resource to the value of the "changeStateTo" attribute passed in the "OperateVnfRequest" data in the POST request.

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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance to be operated. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new "Individual VNF instance" resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | OperateVnfRequest <i>required</i> | Parameters for the Operate VNF operation. | OperateVnfRequest |

OperateVnfRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

| 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. The “stopType” and “gracefulStopTimeout” attributes shall be absent, when the “changeStateTo” attribute is equal to “STARTED”. The “gracefulStopTimeout” attribute shall be present, when the “changeStateTo” is equal to “STOPPED” and the “stopType” attribute is equal to “GRACEFUL”. The “gracefulStopTimeout” attribute shall be absent, when the “changeStateTo” attribute is equal to “STOPPED” and the “stopType” attribute is equal to “FORCEFUL”. The request shall be treated as if the “stopType” attribute was set to ”FORCEFUL”, when the “changeStateTo” attribute is equal to “STOPPED” and the “stopType” attribute is absent. | integer |
| stopType <i>optional</i> | <ul style="list-style-type: none"> • FORCEFUL: The VNFM will stop the VNF instance immediately after accepting the request. • GRACEFUL: The VNFM will first arrange to take the VNF instance 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 instance. | enum (FORCEFUL, GRACEFUL) |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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. Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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. Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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. Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_instances/{vnfInstanceId}/scale

Description

Scale VNF. The POST method requests to scale a VNF instance resource incrementally. This method shall follow the provisions specified in the tables 5.4.5.3.1-1 and 5.4.5.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2. In addition, once the VNFM has successfully completed the underlying VNF LCM operation occurrence, it shall reflect the result of scaling the VNF instance by updating the "scaleStatus" attribute in the representation of the "Individual VNF 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 |

| 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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance to be scaled. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new "Individual VNF instance" resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | ScaleVnfRequest <i>required</i> | Parameters for the scale VNF operation. | ScaleVnfRequest |

ScaleVnfRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| numberOfSteps <i>optional</i> | Number of scaling steps to be executed as part of this Scale VNF operation. It shall be a positive number and the default value shall be 1. | integer |

| Name | Description | Schema |
|--------------------------------|--|----------------------------|
| type <i>required</i> | Indicates the type of the scale operation requested. Permitted values: * SCALE_OUT: adding additional VNFC instances to the VNF to increase capacity * SCALE_IN: removing VNFC instances from the VNF in order to release unused capacity. | enum (SCALE_OUT, SCALE_IN) |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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. Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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. Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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. Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_instances/{vnfInstanceId}/scale_to_level

Description

Scale VNF to Level. The POST method requests to scale a VNF instance resource to a target level. This method shall follow the provisions specified in the tables 5.4.6.3.1-1 and 5.4.6.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2. In addition, once the VNFM has successfully completed the underlying VNF LCM operation occurrence, it shall reflect the result of scaling the VNF instance by updating the "scaleStatus" attribute in the representation of the "Individual VNF 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 |

| 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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | Identifier of the VNF instance to be scaled to a target level. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new "Individual VNF instance" resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | ScaleVnfToLevelRequest <i>required</i> | Parameters for the scale VNF to Level operation. | ScaleVnfToLevelRequest |

ScaleVnfToLevelRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| instantiationLevelId <i>optional</i> | An identifier that is unique within a VNF descriptor. | string |
| scaleInfo <i>optional</i> | For each scaling aspect of the current deployment flavour, indicates the target scale level to which the VNF is to be scaled. Either the instantiationLevelId attribute or the scaleInfo attribute shall be included. | < scaleInfo > array |

scaleInfo

| Name | Description | Schema |
|--------------------------------------|---|---------|
| aspectId <i>required</i> | An identifier that is unique within a VNF descriptor. | 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 Shall be returned when the request has been accepted for processing. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_instances/{vnfInstanceId}/terminate

Description

Terminate VNF. The POST method triggers the VNFM to terminate a VNF instance and to request to the VIM the release of its used virtualised resources. This method shall follow the provisions specified in the tables 5.4.8.3.1-1 and 5.4.8.3.1-2 for URI query parameters, request and response data structures, and response codes. The steps and conditions that apply as the result of successfully executing this method are specified in clause 5.4.1.2. In addition, once the VNFM has successfully completed the underlying VNF LCM operation occurrence, it shall set the "instantiationState" attribute in the representation of the "Individual VNF instance" resource to the value "NOT_INSTANTIATED".

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 |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfInstanceId <i>required</i> | The identifier of the VNF instance to be terminated. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a POST request creating a new "Individual VNF instance" resource. It can also be retrieved from the "id" attribute in the payload body of that response. | string |
| Body | TerminateVnfRequest <i>required</i> | Parameters for the VNF termination. | TerminateVnfRequest |

TerminateVnfRequest

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| gracefulTerminationTimeout <i>optional</i> | This attribute is only applicable in case of graceful termination. It defines the time to wait for the VNF to be taken out of service before shutting down the VNF and releasing the resources. The unit is seconds. If not given and the "terminationType" attribute is set to "GRACEFUL", it is expected that the VNFM waits for the successful taking out of service of the VNF, no matter how long it takes, before shutting down the VNF and releasing the resources. | integer |

| Name | Description | Schema |
|---|---|---------------------------|
| terminationType <i>required</i> | Indicates whether forceful or graceful termination is requested. Permitted values: * FORCEFUL: The VNFM will shut down the VNF and release the resources immediately after accepting the request. * GRACEFUL: The VNFM will first arrange to take the VNF out of service after accepting the request. Once the operation of taking the VNF out of service finishes (irrespective of whether it has succeeded or failed) or once the timer value specified in the "gracefulTerminationTimeout" attribute expires, the VNFM will shut down the VNF and release the resources. | enum (FORCEFUL, GRACEFUL) |

Responses

| HTTP Code | Description | Schema |
|------------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation.</p> <p>Headers :</p> <p>Location (string (url)) : The resource URI of the created VNF 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> <p>Version (string) : Version of the API used in the response.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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. Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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. Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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. Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

GET /vnf_lcm_op_occs

Description

Get Operation Status. The API consumer can use this method to query status information about multiple VNF lifecycle management operation occurrences. This method shall follow the provisions specified in the tables 5.4.12.3.2-1 and 5.4.12.3.2-2 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 |
|--------|--|--|--------|
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Query | all_fields <i>optional</i> | Include all complex attributes in the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM shall support this parameter. | string |
| Query | exclude_default <i>optional</i> | Indicates to exclude the following complex attributes from the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM shall support this parameter. The following attributes shall be excluded from the VnfLcmOpOcc structure in the response body if this parameter is provided, or none of the parameters "all_fields," "fields", "exclude_fields", "exclude_default" are provided: - vnfConfigurableProperties - vimConnectionInfo - instantiatedVnfInfo - metadata - extensions | string |
| Query | exclude_fields <i>optional</i> | Complex attributes to be excluded from the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM should support this parameter. | string |
| Query | fields <i>optional</i> | Complex attributes to be included into the response. See clause 5.3 of ETSI GS NFV-SOL 013 for details. The VNFM should support this parameter. | string |
| Query | filter <i>optional</i> | Attribute-based filtering expression according to clause 5.2 of ETSI GS NFV SOL 013. The VNFM shall support receiving this parameter as part of the URI query string. The NFVO may supply this parameter. All attribute names that appear in the VnfLcmOpOcc and in data types referenced from it shall be supported by the VNFM in the filter expression. | string |
| Query | nextpage_opaque_marker <i>optional</i> | Marker to obtain the next page of a paged response. Shall be supported by the VNFM if the VNFM supports alternative 2 (paging) according to clause 5.4.2.1 of ETSI GS NFV-SOL 013 for this resource. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 200 | <p>200 OK Shall be returned when status information for zero or more VNF lifecycle management operation occurrences has been queried successfully. The response body shall contain in an array the status information about zero or more VNF lifecycle operation occurrences, as defined in clause 5.5.2.13. If the "filter" URI parameter or one of the "all_fields", "fields" (if supported), "exclude_fields" (if supported) or "exclude_default" URI parameters was supplied in the request, the data in the response body shall have been transformed according to the rules specified in clauses 5.2.2 and 5.3.2 of ETSI GS NFV-SOL 013, respectively. If the VNFM supports alternative 2 (paging) according to clause 5.4.2.1 of ETSI GS NFV-SOL 013 for this resource, inclusion of the Link HTTP header in this response shall follow the provisions in clause 5.4.2.3 of ETSI GS NFV-SOL 013.</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> <p>Version (string) : Version of the API used in the response.</p> <p>Link (string) : Reference to other resources. Used for paging in the present document, see clause 4.7.2.1.</p> | <p>Response 200</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| Name | Description | Schema |
|--|---|---|
| _links <i>optional</i> | Links to resources related to this resource. | _links |
| cancelMode <i>optional</i> | Cancellation mode. GRACEFUL: If the VNF LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state, the VNFM shall not start any new resource management operation and shall wait for the ongoing resource management operations in the underlying system, typically the VIM, to finish execution or to time out. After that, the VNFM shall put the operation occurrence into the FAILED_TEMP state. If the VNF LCM operation occurrence is in "STARTING" state, the VNFM shall not start any resource management operation and shall wait for the granting request to finish execution or time out. After that, the VNFM shall put the operation occurrence into the ROLLED_BACK state. FORCEFUL: If the VNF LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state, the VNFM shall not start any new resource management operation, shall cancel the ongoing resource management operations in the underlying system, typically the VIM, and shall wait for the cancellation to finish or to time out. After that, the VNFM shall put the operation occurrence into the FAILED_TEMP state. If the VNF LCM operation occurrence is in "STARTING" state, the VNFM shall not start any resource management operation and put the operation occurrence into the ROLLED_BACK state. | enum (GRACEFUL, FORCEFUL) |
| changedExtConnectivity <i>optional</i> | Information about changed external connectivity, if applicable. This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < changedExtConnectivity > array |
| changedInfo <i>optional</i> | This type represents attribute modifications that were performed on an "Individual VNF instance" resource. The attributes that can be included consist of those requested to be modified explicitly in the "VnfInfoModificationRequest" data structure, and additional attributes of the "VnfInstance" data structure that were modified implicitly e.g. when modifying the referenced VNF package. | changedInfo |

| Name | Description | Schema |
|--|--|---------|
| 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 |
| grantId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| isAutomaticIn vocation <i>required</i> | The Boolean is a data type having two values (true and false). | boolean |
| isCancelPendi ng <i>required</i> | The Boolean is a data type having two values (true and false). | boolean |

| Name | Description | Schema | | | | | | | | | | | | | | | | | | | | |
|---|--|--|-------------|-------------|---|-------|---|----------------|--|----------------|--|-----------|---|------|--|---------|---|-----------------|--|-------------|--|--|
| operation <i>required</i> | <p>The enumeration LcmOpType defines the permitted values to represent VNF lifecycle operation types in VNF lifecycle management operation occurrence resources and VNF lifecycle management operation occurrence notifications. It shall comply with the provisions defined in table 5.5.4.5-1.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>INSTANTIATE</td> <td>Represents the "Instantiate VNF" LCM operation.</td> </tr> <tr> <td>SCALE</td> <td>Represents the "Scale VNF" LCM operation.</td> </tr> <tr> <td>SCALE_TO_LEVEL</td> <td>Represents the "Scale VNF to Level" LCM operation.</td> </tr> <tr> <td>CHANGE_FLAVOUR</td> <td>Represents the "Change VNF Flavour" LCM operation.</td> </tr> <tr> <td>TERMINATE</td> <td>Represents the "Terminate VNF" LCM operation.</td> </tr> <tr> <td>HEAL</td> <td>Represents the "Heal VNF" LCM operation.</td> </tr> <tr> <td>OPERATE</td> <td>Represents the "Operate VNF" LCM operation.</td> </tr> <tr> <td>CHANGE_EXT_CONN</td> <td>Represents the "Change external VNF connectivity" LCM operation.</td> </tr> <tr> <td>MODIFY_INFO</td> <td>Represents the "Modify VNF Information" LCM operation.</td> </tr> </tbody> </table> | Value | Description | INSTANTIATE | Represents the "Instantiate VNF" LCM operation. | SCALE | Represents the "Scale VNF" LCM operation. | SCALE_TO_LEVEL | Represents the "Scale VNF to Level" LCM operation. | CHANGE_FLAVOUR | Represents the "Change VNF Flavour" LCM operation. | TERMINATE | Represents the "Terminate VNF" LCM operation. | HEAL | Represents the "Heal VNF" LCM operation. | OPERATE | Represents the "Operate VNF" LCM operation. | CHANGE_EXT_CONN | Represents the "Change external VNF connectivity" LCM operation. | MODIFY_INFO | Represents the "Modify VNF Information" LCM operation. | enum (INSTANTIATE, SCALE, SCALE_TO_LEVEL, CHANGE_FLAVOUR, TERMINATE, HEAL, OPERATE, CHANGE_EXT_CONN, MODIFY_INFO) |
| Value | Description | | | | | | | | | | | | | | | | | | | | | |
| INSTANTIATE | Represents the "Instantiate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| SCALE | Represents the "Scale VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| SCALE_TO_LEVEL | Represents the "Scale VNF to Level" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| CHANGE_FLAVOUR | Represents the "Change VNF Flavour" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| TERMINATE | Represents the "Terminate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| HEAL | Represents the "Heal VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| OPERATE | Represents the "Operate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| CHANGE_EXT_CONN | Represents the "Change external VNF connectivity" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| MODIFY_INFO | Represents the "Modify VNF Information" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| operationParameters <i>optional</i> | <p>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 operationType and the data type of this attribute shall apply:</p> <ul style="list-style-type: none"> * INSTANTIATE: InstantiateVnfRequest * SCALE: ScaleVnfRequest * SCALE_TO_LEVEL: ScaleVnfToLevelRequest * CHANGE_FLAVOUR: ChangeVnfFlavourRequest * OPERATE: OperateVnfRequest * HEAL: HealVnfRequest * CHANGE_EXT_CONN: ChangeExtVnfConnectivityRequest * TERMINATE: TerminateVnfRequest * MODIFY_INFO: VnfInfoModifications | object | | | | | | | | | | | | | | | | | | | | |
| operationState <i>required</i> | <p>STARTING: The LCM operation is starting. PROCESSING: The LCM operation is currently in execution. COMPLETED: The LCM operation has been completed successfully. 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.</p> | enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) | | | | | | | | | | | | | | | | | | | | |

| Name | Description | Schema |
|--|---|---------------------------------|
| 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 stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| stateEnteredTime <i>required</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

links

| Name | Description | Schema |
|---------------------------------------|--|-----------------------------|
| cancel <i>optional</i> | This type represents a link to a resource using an absolute URI. | cancel |
| fail <i>optional</i> | This type represents a link to a resource using an absolute URI. | fail |
| grant <i>optional</i> | This type represents a link to a resource using an absolute URI. | grant |
| retry <i>optional</i> | This type represents a link to a resource using an absolute URI. | retry |
| rollback <i>optional</i> | This type represents a link to a resource using an absolute URI. | rollback |
| self <i>required</i> | This type represents a link to a resource using an absolute URI. | self |
| vnfInstance <i>required</i> | This type represents a link to a resource using an absolute URI. | vnfInstance |

cancel

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

fail

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

grant

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

retry

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

rollback

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

vnfInstance

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

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 |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

changedInfo

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectionInfo <i>optional</i> | If present, this attribute signals modifications of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance". | < vimConnectionInfo > array |
| vimConnectionInfoDeleteIds <i>optional</i> | If present, this attribute signals the deletion of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance". | < string > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDescription <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfInstanceName <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfProductName <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfProvider <i>optional</i> | A string defined in IETF RFC 8259. | string |

| Name | Description | Schema |
|--|--|--------|
| vnfSoftwareVersion <i>optional</i> | A version. | string |
| vnfdId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>optional</i> | A version. | string |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

| Name | Description | Schema |
|-----------------------------------|---|---------------|
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | 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) |

resourceChanges

| Name | Description | Schema |
|---|--|---|
| affectedExtLinkPorts <i>optional</i> | Information about external VNF link ports that were affected during the lifecycle operation. See note 1. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedExtLinkPorts > array |
| affectedVirtualLinks <i>optional</i> | Information about VL instances that were affected during the lifecycle operation. See note 1 and note 2. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. NOTE 2: For a particular affected VL, there shall be as many "AffectedVirtualLink" entries as needed for signalling the different types of changes, i.e., one per virtual link and change type. For instance, in the case of signaling affected VL instances involving the addition of a particular VL instance with links ports, one "AffectedVirtualLink" entry signals the addition of the VL by using the "changeType" attribute of "AffectedVirtualLink" structure equal to "ADDED", and another "AffectedVirtualLink" entry signals the addition of externally visible VNF link ports of the VL by using the "changeType" equal to "LINK_PORT_ADDED". | < affectedVirtualLinks > array |
| affectedVirtualStorages <i>optional</i> | Information about virtualised storage instances that were affected during the lifecycle operation. This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedVirtualStorages > array |
| affectedVnfcs <i>optional</i> | Information about VNFC instances that were affected during the lifecycle operation. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedVnfcs > array |

affectedExtLinkPorts

| Name | Description | Schema |
|--------------------------------------|---|-----------------------|
| changeType <i>required</i> | Signals the type of change. Permitted values: - ADDED - REMOVED | enum (ADDED, REMOVED) |

| Name | Description | Schema |
|--|--|--------------------------------|
| extCpInstanceId <i>required</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 |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVirtualLinks

| 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. NOTE 1: When signalling the addition (LINK_PORT_ADDED) or removal (LINK_PORT_REMOVED) of VNF link ports, the "networkResource" and "resourceDefinitionId" attributes refer to the affected virtual link instance, not the link port instance. The resource handles of the affected VNF link ports can be found by dereferencing the identifiers in the "vnfLinkPortIds" attribute. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY, LINK_PORT_ADDED, LINK_PORT_REMOVED) |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | string |

| Name | Description | Schema |
|--|--|------------------|
| vnfLinkPortIds <i>optional</i> | Identifiers of the link ports of the affected VL related to the change. Each identifier references a "VnfLinkPortInfo" structure. Shall be set when changeType is equal to "LINK_PORT_ADDED" or "LINK_PORT_REMOVED", and the related "VnfLinkPortInfo" structures are present (case "added") or have been present (case "removed") in the "VnfVirtualLinkResourceInfo" or "ExtManagedVirtualLinkInfo" structures that are represented by the "vnfVirtualLinkResource-Info" or "extManagedVirtualLinkInfo" attribute in the "VnfInstance" structure. See note 1. NOTE 1: When signalling the addition (LINK_PORT_ADDED) or removal (LINK_PORT_REMOVED) of VNF link ports, the "networkResource" and "resourceDefinitionId" attributes refer to the affected virtual link instance, not the link port instance. The resource handles of the affected VNF link ports can be found by dereferencing the identifiers in the "vnfLinkPortIds" attribute. | < string > array |
| vnfVirtualLinkDescId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVirtualStorages

| Name | Description | Schema |
|--|---|--|
| changeType <i>required</i> | Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY For a temporary resource, an AffectedVirtualStorage structure exists as long as the temporary resource exists. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY) |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | 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> | An identifier that is unique within a VNF descriptor. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVnfc

| Name | Description | Schema |
|---|---|--|
| addedStorageResourceIds <i>optional</i> | References to VirtualStorage resources that have been added. Each value refers to a VirtualStorageResourceInfo item in the VnfInstance that was added to the VNFC. It shall be provided if at least one storage resource was added to the VNFC. | < string > array |
| affectedVnfcCpIds <i>optional</i> | Identifiers of CP(s) of the VNFC instance that were affected by the change. Shall be present for those affected CPs of the VNFC instance that are associated to an external CP of the VNF instance. May be present for further affected CPs of the VNFC instance. | < string > array |
| changeType <i>required</i> | Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY For a temporary resource, an AffectedVnfc structure exists as long as the temporary resource exists. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY) |
| 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 |

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| removedStorageResourceIds <i>optional</i> | References to VirtualStorage resources that have been removed. The value contains the identifier of a VirtualStorageResourceInfo item that has been removed from the VNFC, and might no longer exist in the VnfInstance. It shall be provided if at least one storage resource was removed from the VNFC. | < string > array |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | string |
| vduId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | string |

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 |

| Name | Description | Schema |
|--|---|--------|
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |
| 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 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) |

Response 504

| 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) |

GET /vnf_lcm_op_occs/{vnfLcmOpOccId}

Description

Get Operation Status. The API consumer can use this method to retrieve status information about a VNF lifecycle management operation occurrence by reading an "Individual VNF LCM operation occurrence" resource. This method shall follow the provisions specified in the tables 5.4.13.3.2-1

and 5.4.13.3.2-2 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 | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfLcmOpOccId <i>required</i> | Identifier of a VNF lifecycle management operation occurrence. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a PATCH or POST request triggering a VNF LCM operation. It can also be retrieved from the "vnfLcmOpOccId" attribute in the VnfLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|------------|--|------------------------------|
| 200 | <p>200 OK Shall be returned when information about a VNF LCM operation occurrence has been read successfully. The response body shall contain status information about a VNF lifecycle management operation occurrence (see 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> <p>Version (string) : Version of the API used in the response.</p> | Response 200 |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| Name | Description | Schema |
|--|---|---|
| <u>links</u> <i>optional</i> | Links to resources related to this resource. | _links |
| cancelMode <i>optional</i> | Cancellation mode. GRACEFUL: If the VNF LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state, the VNFM shall not start any new resource management operation and shall wait for the ongoing resource management operations in the underlying system, typically the VIM, to finish execution or to time out. After that, the VNFM shall put the operation occurrence into the FAILED_TEMP state. If the VNF LCM operation occurrence is in "STARTING" state, the VNFM shall not start any resource management operation and shall wait for the granting request to finish execution or time out. After that, the VNFM shall put the operation occurrence into the ROLLED_BACK state. FORCEFUL: If the VNF LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state, the VNFM shall not start any new resource management operation, shall cancel the ongoing resource management operations in the underlying system, typically the VIM, and shall wait for the cancellation to finish or to time out. After that, the VNFM shall put the operation occurrence into the FAILED_TEMP state. If the VNF LCM operation occurrence is in "STARTING" state, the VNFM shall not start any resource management operation and put the operation occurrence into the ROLLED_BACK state. | enum (GRACEFUL, FORCEFUL) |
| changedExtConnectivity <i>optional</i> | Information about changed external connectivity, if applicable. This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < changedExtConnectivity > array |
| changedInfo <i>optional</i> | This type represents attribute modifications that were performed on an "Individual VNF instance" resource. The attributes that can be included consist of those requested to be modified explicitly in the "VnfInfoModificationRequest" data structure, and additional attributes of the "VnfInstance" data structure that were modified implicitly e.g. when modifying the referenced VNF package. | changedInfo |

| Name | Description | Schema |
|--|--|---------|
| 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 |
| grantId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| isAutomaticIn vocation <i>required</i> | The Boolean is a data type having two values (true and false). | boolean |
| isCancelPendi ng <i>required</i> | The Boolean is a data type having two values (true and false). | boolean |

| Name | Description | Schema | | | | | | | | | | | | | | | | | | | | |
|---|--|--|-------------|-------------|---|-------|---|----------------|--|----------------|--|-----------|---|------|--|---------|---|-----------------|--|-------------|--|--|
| operation <i>required</i> | <p>The enumeration LcmOpType defines the permitted values to represent VNF lifecycle operation types in VNF lifecycle management operation occurrence resources and VNF lifecycle management operation occurrence notifications. It shall comply with the provisions defined in table 5.5.4.5-1.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>INSTANTIATE</td> <td>Represents the "Instantiate VNF" LCM operation.</td> </tr> <tr> <td>SCALE</td> <td>Represents the "Scale VNF" LCM operation.</td> </tr> <tr> <td>SCALE_TO_LEVEL</td> <td>Represents the "Scale VNF to Level" LCM operation.</td> </tr> <tr> <td>CHANGE_FLAVOUR</td> <td>Represents the "Change VNF Flavour" LCM operation.</td> </tr> <tr> <td>TERMINATE</td> <td>Represents the "Terminate VNF" LCM operation.</td> </tr> <tr> <td>HEAL</td> <td>Represents the "Heal VNF" LCM operation.</td> </tr> <tr> <td>OPERATE</td> <td>Represents the "Operate VNF" LCM operation.</td> </tr> <tr> <td>CHANGE_EXT_CONN</td> <td>Represents the "Change external VNF connectivity" LCM operation.</td> </tr> <tr> <td>MODIFY_INFO</td> <td>Represents the "Modify VNF Information" LCM operation.</td> </tr> </tbody> </table> | Value | Description | INSTANTIATE | Represents the "Instantiate VNF" LCM operation. | SCALE | Represents the "Scale VNF" LCM operation. | SCALE_TO_LEVEL | Represents the "Scale VNF to Level" LCM operation. | CHANGE_FLAVOUR | Represents the "Change VNF Flavour" LCM operation. | TERMINATE | Represents the "Terminate VNF" LCM operation. | HEAL | Represents the "Heal VNF" LCM operation. | OPERATE | Represents the "Operate VNF" LCM operation. | CHANGE_EXT_CONN | Represents the "Change external VNF connectivity" LCM operation. | MODIFY_INFO | Represents the "Modify VNF Information" LCM operation. | enum (INSTANTIATE, SCALE, SCALE_TO_LEVEL, CHANGE_FLAVOUR, TERMINATE, HEAL, OPERATE, CHANGE_EXT_CONN, MODIFY_INFO) |
| Value | Description | | | | | | | | | | | | | | | | | | | | | |
| INSTANTIATE | Represents the "Instantiate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| SCALE | Represents the "Scale VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| SCALE_TO_LEVEL | Represents the "Scale VNF to Level" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| CHANGE_FLAVOUR | Represents the "Change VNF Flavour" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| TERMINATE | Represents the "Terminate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| HEAL | Represents the "Heal VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| OPERATE | Represents the "Operate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| CHANGE_EXT_CONN | Represents the "Change external VNF connectivity" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| MODIFY_INFO | Represents the "Modify VNF Information" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| operationParameters <i>optional</i> | <p>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 operationType and the data type of this attribute shall apply:</p> <ul style="list-style-type: none"> * INSTANTIATE: InstantiateVnfRequest * SCALE: ScaleVnfRequest * SCALE_TO_LEVEL: ScaleVnfToLevelRequest * CHANGE_FLAVOUR: ChangeVnfFlavourRequest * OPERATE: OperateVnfRequest * HEAL: HealVnfRequest * CHANGE_EXT_CONN: ChangeExtVnfConnectivityRequest * TERMINATE: TerminateVnfRequest * MODIFY_INFO: VnfInfoModifications | object | | | | | | | | | | | | | | | | | | | | |
| operationState <i>required</i> | <p>STARTING: The LCM operation is starting. PROCESSING: The LCM operation is currently in execution. COMPLETED: The LCM operation has been completed successfully. 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.</p> | enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) | | | | | | | | | | | | | | | | | | | | |

| Name | Description | Schema |
|--|---|---------------------------------|
| 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 stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| stateEnteredTime <i>required</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

links

| Name | Description | Schema |
|---------------------------------------|--|-----------------------------|
| cancel <i>optional</i> | This type represents a link to a resource using an absolute URI. | cancel |
| fail <i>optional</i> | This type represents a link to a resource using an absolute URI. | fail |
| grant <i>optional</i> | This type represents a link to a resource using an absolute URI. | grant |
| retry <i>optional</i> | This type represents a link to a resource using an absolute URI. | retry |
| rollback <i>optional</i> | This type represents a link to a resource using an absolute URI. | rollback |
| self <i>required</i> | This type represents a link to a resource using an absolute URI. | self |
| vnfInstance <i>required</i> | This type represents a link to a resource using an absolute URI. | vnfInstance |

cancel

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

fail

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

grant

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

retry

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

rollback

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

vnfInstance

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

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 |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

changedInfo

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectionInfo <i>optional</i> | If present, this attribute signals modifications of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance". | < vimConnectionInfo > array |
| vimConnectionInfoDeleteIds <i>optional</i> | If present, this attribute signals the deletion of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance". | < string > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDescription <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfInstanceName <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfProductName <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfProvider <i>optional</i> | A string defined in IETF RFC 8259. | string |

| Name | Description | Schema |
|--|--|--------|
| vnfSoftwareVersion <i>optional</i> | A version. | string |
| vnfdId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>optional</i> | A version. | string |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

| Name | Description | Schema |
|-----------------------------------|---|---------------|
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | 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) |

resourceChanges

| Name | Description | Schema |
|---|--|---|
| affectedExtLinkPorts <i>optional</i> | Information about external VNF link ports that were affected during the lifecycle operation. See note 1. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedExtLinkPorts > array |
| affectedVirtualLinks <i>optional</i> | Information about VL instances that were affected during the lifecycle operation. See note 1 and note 2. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. NOTE 2: For a particular affected VL, there shall be as many "AffectedVirtualLink" entries as needed for signalling the different types of changes, i.e., one per virtual link and change type. For instance, in the case of signaling affected VL instances involving the addition of a particular VL instance with links ports, one "AffectedVirtualLink" entry signals the addition of the VL by using the "changeType" attribute of "AffectedVirtualLink" structure equal to "ADDED", and another "AffectedVirtualLink" entry signals the addition of externally visible VNF link ports of the VL by using the "changeType" equal to "LINK_PORT_ADDED". | < affectedVirtualLinks > array |
| affectedVirtualStorages <i>optional</i> | Information about virtualised storage instances that were affected during the lifecycle operation. This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedVirtualStorages > array |
| affectedVnfcs <i>optional</i> | Information about VNFC instances that were affected during the lifecycle operation. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedVnfcs > array |

affectedExtLinkPorts

| Name | Description | Schema |
|--------------------------------------|---|-----------------------|
| changeType <i>required</i> | Signals the type of change. Permitted values: - ADDED - REMOVED | enum (ADDED, REMOVED) |

| Name | Description | Schema |
|--|--|--------------------------------|
| extCpInstanceId <i>required</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 |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVirtualLinks

| 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. NOTE 1: When signalling the addition (LINK_PORT_ADDED) or removal (LINK_PORT_REMOVED) of VNF link ports, the "networkResource" and "resourceDefinitionId" attributes refer to the affected virtual link instance, not the link port instance. The resource handles of the affected VNF link ports can be found by dereferencing the identifiers in the "vnfLinkPortIds" attribute. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY, LINK_PORT_ADDED, LINK_PORT_REMOVED) |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | string |

| Name | Description | Schema |
|--|--|------------------|
| vnfLinkPortIds <i>optional</i> | Identifiers of the link ports of the affected VL related to the change. Each identifier references a "VnfLinkPortInfo" structure. Shall be set when changeType is equal to "LINK_PORT_ADDED" or "LINK_PORT_REMOVED", and the related "VnfLinkPortInfo" structures are present (case "added") or have been present (case "removed") in the "VnfVirtualLinkResourceInfo" or "ExtManagedVirtualLinkInfo" structures that are represented by the "vnfVirtualLinkResource-Info" or "extManagedVirtualLinkInfo" attribute in the "VnfInstance" structure. See note 1. NOTE 1: When signalling the addition (LINK_PORT_ADDED) or removal (LINK_PORT_REMOVED) of VNF link ports, the "networkResource" and "resourceDefinitionId" attributes refer to the affected virtual link instance, not the link port instance. The resource handles of the affected VNF link ports can be found by dereferencing the identifiers in the "vnfLinkPortIds" attribute. | < string > array |
| vnfVirtualLinkDescId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVirtualStorages

| Name | Description | Schema |
|--|---|--|
| changeType <i>required</i> | Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY For a temporary resource, an AffectedVirtualStorage structure exists as long as the temporary resource exists. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY) |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | 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> | An identifier that is unique within a VNF descriptor. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVnfcs

| Name | Description | Schema |
|---|---|--|
| addedStorageResourceIds <i>optional</i> | References to VirtualStorage resources that have been added. Each value refers to a VirtualStorageResourceInfo item in the VnfInstance that was added to the VNFC. It shall be provided if at least one storage resource was added to the VNFC. | < string > array |
| affectedVnfcpIds <i>optional</i> | Identifiers of CP(s) of the VNFC instance that were affected by the change. Shall be present for those affected CPs of the VNFC instance that are associated to an external CP of the VNF instance. May be present for further affected CPs of the VNFC instance. | < string > array |
| changeType <i>required</i> | Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY For a temporary resource, an AffectedVnfcs structure exists as long as the temporary resource exists. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY) |
| 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 |

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| removedStorageResourceIds <i>optional</i> | References to VirtualStorage resources that have been removed. The value contains the identifier of a VirtualStorageResourceInfo item that has been removed from the VNFC, and might no longer exist in the VnfInstance. It shall be provided if at least one storage resource was removed from the VNFC. | < string > array |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | string |
| vduId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | string |

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 |

| Name | Description | Schema |
|--|---|--------|
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |
| 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 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) |

Response 504

| 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) |

POST /vnf_lcm_op_occs/{vnfLcmOpOccId}/cancel

Description

The POST method initiates cancelling an ongoing VNF lifecycle operation while it is being executed or rolled back, i.e. the related "Individual VNF LCM operation occurrence" resource is either in "STARTING" or "PROCESSING" or "ROLLING_BACK" state. This method shall follow the provisions

specified in the tables 5.4.17.3.1-1 and 5.4.17.3.1-2 for URI query parameters, request and response data structures, and response codes. Before returning the "202 Accepted" response, the VNFM shall update the "isCancelPending" and "cancelMode" attributes in the representation of the parent resource according to the provisions in clause 5.5.2.13. In case of success of processing the asynchronous request: 1) If the request has been processed in "STARTING" state, the "operationState" attribute in the representation of the parent resource shall be changed to "ROLLED_BACK". 2) If the request has been processed in "PROCESSING" or "ROLLING_BACK" state, the "operationState" attribute in the representation of the parent resource shall be changed to "FAILED_TEMP".

In both cases, the VNFM shall update the "isCancelPending" and "cancelMode" attributes in the representation of the parent resource according to the provisions in clause 5.5.2.13 to reflect the new status, and the applicable "result" notification according to clause 5.6.2.2 shall be emitted to indicate that the execution of the underlying VNF LCM operation occurrence has temporarily failed. Due to race conditions, the processing of the actual operation that is to be cancelled may eventually still succeed, in which case the "operationState" attribute in the representation of the parent resource shall represent the result of that operation, rather than the result of the cancellation.

Parameters

| Type | Name | Description | Schema |
|--------|--|---|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfLcmOpOcc Id <i>required</i> | Identifier of a VNF lifecycle management operation occurrence to be cancelled. This identifier can be retrieved from the resource referenced by the "Location" HTTP header in the response to a PATCH or POST request triggering a VNF LCM operation. It can also be retrieved from the "vnfLcmOpOccId" attribute in the VnfLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response shall have an empty payload body.</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> <p>Version (string) : The used API version.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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. Version (string) : Version of the API used in the response.</p> | Response 404 |
| 405 | <p>405 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.</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. Version (string) : Version of the API used in the response.</p> | Response 405 |
| 406 | <p>406 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.</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. Version (string) : Version of the API used in the response.</p> | Response 406 |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_lcm_op_occs/{vnfLcmOpOccId}/fail

Description

The POST method marks a VNF lifecycle management operation occurrence as "finally failed" if that operation occurrence is in "FAILED_TEMP" state. This method shall follow the provisions specified in the tables 5.4.16.3.1-1 and 5.4.16.3.1-2 for URI query parameters, request and response data structures, and response codes. In case of success, the "operationState" attribute in the representation of the parent resource shall be changed to "FAILED" and the applicable "result" notification according to clause 5.6.2.2 shall be emitted to indicate that the execution of the underlying VNF LCM operation occurrence has finally and unrecoverably failed.

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 | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfLcmOpOccId <i>required</i> | Identifier of a VNF 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 PATCH or POST request triggering a VNF LCM operation. It can also be retrieved from the "vnfLcmOpOccId" attribute in the VnfLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 200 | <p>200 OK Shall be returned when the state of the VNF lifecycle management operation occurrence has been changed successfully. The response body shall include a representation of the "Individual VNF lifecycle operation occurrence" resource.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 200 |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

Response 200

| Name | Description | Schema |
|--------------------------------------|--|---------------------------|
| <u>links</u> <i>optional</i> | Links to resources related to this resource. | _links |
| cancelMode <i>optional</i> | <p>Cancellation mode. GRACEFUL: If the VNF LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state, the VNFM shall not start any new resource management operation and shall wait for the ongoing resource management operations in the underlying system, typically the VIM, to finish execution or to time out. After that, the VNFM shall put the operation occurrence into the FAILED_TEMP state. If the VNF LCM operation occurrence is in "STARTING" state, the VNFM shall not start any resource management operation and shall wait for the granting request to finish execution or time out. After that, the VNFM shall put the operation occurrence into the ROLLED_BACK state. FORCEFUL: If the VNF LCM operation occurrence is in "PROCESSING" or "ROLLING_BACK" state, the VNFM shall not start any new resource management operation, shall cancel the ongoing resource management operations in the underlying system, typically the VIM, and shall wait for the cancellation to finish or to time out. After that, the VNFM shall put the operation occurrence into the FAILED_TEMP state. If the VNF LCM operation occurrence is in "STARTING" state, the VNFM shall not start any resource management operation and put the operation occurrence into the ROLLED_BACK state.</p> | enum (GRACEFUL, FORCEFUL) |

| Name | Description | Schema |
|--|--|---|
| changedExtConnectivity <i>optional</i> | Information about changed external connectivity, if applicable. This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < changedExtConnectivity > array |
| changedInfo <i>optional</i> | This type represents attribute modifications that were performed on an "Individual VNF instance" resource. The attributes that can be included consist of those requested to be modified explicitly in the "VnfInfoModificationRequest" data structure, and additional attributes of the "VnfInstance" data structure that were modified implicitly e.g. when modifying the referenced VNF package. | changedInfo |
| 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 |
| grantId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| isAutomaticInvocation <i>required</i> | The Boolean is a data type having two values (true and false). | boolean |
| isCancelPending <i>required</i> | The Boolean is a data type having two values (true and false). | boolean |

| Name | Description | Schema | | | | | | | | | | | | | | | | | | | | |
|---|--|--|-------------|-------------|---|-------|---|----------------|--|----------------|--|-----------|---|------|--|---------|---|-----------------|--|-------------|--|--|
| operation <i>required</i> | <p>The enumeration LcmOpType defines the permitted values to represent VNF lifecycle operation types in VNF lifecycle management operation occurrence resources and VNF lifecycle management operation occurrence notifications. It shall comply with the provisions defined in table 5.5.4.5-1.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>INSTANTIATE</td> <td>Represents the "Instantiate VNF" LCM operation.</td> </tr> <tr> <td>SCALE</td> <td>Represents the "Scale VNF" LCM operation.</td> </tr> <tr> <td>SCALE_TO_LEVEL</td> <td>Represents the "Scale VNF to Level" LCM operation.</td> </tr> <tr> <td>CHANGE_FLAVOUR</td> <td>Represents the "Change VNF Flavour" LCM operation.</td> </tr> <tr> <td>TERMINATE</td> <td>Represents the "Terminate VNF" LCM operation.</td> </tr> <tr> <td>HEAL</td> <td>Represents the "Heal VNF" LCM operation.</td> </tr> <tr> <td>OPERATE</td> <td>Represents the "Operate VNF" LCM operation.</td> </tr> <tr> <td>CHANGE_EXT_CONN</td> <td>Represents the "Change external VNF connectivity" LCM operation.</td> </tr> <tr> <td>MODIFY_INFO</td> <td>Represents the "Modify VNF Information" LCM operation.</td> </tr> </tbody> </table> | Value | Description | INSTANTIATE | Represents the "Instantiate VNF" LCM operation. | SCALE | Represents the "Scale VNF" LCM operation. | SCALE_TO_LEVEL | Represents the "Scale VNF to Level" LCM operation. | CHANGE_FLAVOUR | Represents the "Change VNF Flavour" LCM operation. | TERMINATE | Represents the "Terminate VNF" LCM operation. | HEAL | Represents the "Heal VNF" LCM operation. | OPERATE | Represents the "Operate VNF" LCM operation. | CHANGE_EXT_CONN | Represents the "Change external VNF connectivity" LCM operation. | MODIFY_INFO | Represents the "Modify VNF Information" LCM operation. | enum (INSTANTIATE, SCALE, SCALE_TO_LEVEL, CHANGE_FLAVOUR, TERMINATE, HEAL, OPERATE, CHANGE_EXT_CONN, MODIFY_INFO) |
| Value | Description | | | | | | | | | | | | | | | | | | | | | |
| INSTANTIATE | Represents the "Instantiate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| SCALE | Represents the "Scale VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| SCALE_TO_LEVEL | Represents the "Scale VNF to Level" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| CHANGE_FLAVOUR | Represents the "Change VNF Flavour" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| TERMINATE | Represents the "Terminate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| HEAL | Represents the "Heal VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| OPERATE | Represents the "Operate VNF" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| CHANGE_EXT_CONN | Represents the "Change external VNF connectivity" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| MODIFY_INFO | Represents the "Modify VNF Information" LCM operation. | | | | | | | | | | | | | | | | | | | | | |
| operationParameters <i>optional</i> | <p>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 operationType and the data type of this attribute shall apply:</p> <ul style="list-style-type: none"> * INSTANTIATE: InstantiateVnfRequest * SCALE: ScaleVnfRequest * SCALE_TO_LEVEL: ScaleVnfToLevelRequest * CHANGE_FLAVOUR: ChangeVnfFlavourRequest * OPERATE: OperateVnfRequest * HEAL: HealVnfRequest * CHANGE_EXT_CONN: ChangeExtVnfConnectivityRequest * TERMINATE: TerminateVnfRequest * MODIFY_INFO: VnfInfoModifications | object | | | | | | | | | | | | | | | | | | | | |
| operationState <i>required</i> | <p>STARTING: The LCM operation is starting. PROCESSING: The LCM operation is currently in execution. COMPLETED: The LCM operation has been completed successfully. 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.</p> | enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK) | | | | | | | | | | | | | | | | | | | | |

| Name | Description | Schema |
|--|---|---------------------------------|
| 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 stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| stateEnteredTime <i>required</i> | Date-time stamp. Representation: String formatted according to IETF RFC 3339. | string (date-time) |
| vnfInstanceId <i>required</i> | An identifier with the intention of being globally unique. | string |

links

| Name | Description | Schema |
|---------------------------------------|--|-----------------------------|
| cancel <i>optional</i> | This type represents a link to a resource using an absolute URI. | cancel |
| fail <i>optional</i> | This type represents a link to a resource using an absolute URI. | fail |
| grant <i>optional</i> | This type represents a link to a resource using an absolute URI. | grant |
| retry <i>optional</i> | This type represents a link to a resource using an absolute URI. | retry |
| rollback <i>optional</i> | This type represents a link to a resource using an absolute URI. | rollback |
| self <i>required</i> | This type represents a link to a resource using an absolute URI. | self |
| vnfInstance <i>required</i> | This type represents a link to a resource using an absolute URI. | vnfInstance |

cancel

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

fail

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

grant

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

retry

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

rollback

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

self

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

vnfInstance

| Name | Description | Schema |
|--------------------------------|--|--------|
| href <i>required</i> | String formatted according to IETF RFC 3986. | string |

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 |
| resourceProviderId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

changedInfo

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vimConnectionInfo <i>optional</i> | If present, this attribute signals modifications of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance". | < vimConnectionInfo > array |
| vimConnectionInfoDeleteIds <i>optional</i> | If present, this attribute signals the deletion of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance". | < string > array |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| vnfInstanceDescription <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfInstanceName <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfProductName <i>optional</i> | A string defined in IETF RFC 8259. | string |
| vnfProvider <i>optional</i> | A string defined in IETF RFC 8259. | string |

| Name | Description | Schema |
|--|--|--------|
| vnfSoftwareVersion <i>optional</i> | A version. | string |
| vnfdId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vnfdVersion <i>optional</i> | A version. | string |

vimConnectionInfo

| Name | Description | Schema |
|---|---|--------|
| accessInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| extra <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| id <i>required</i> | An identifier with the intention of being globally unique. | string |
| interfaceInfo <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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |

| Name | Description | Schema |
|-----------------------------------|---|---------------|
| vimId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimType <i>required</i> | Discriminator for the different types of the VIM information. The value of this attribute determines the structure of the "interfaceInfo" and "accessInfo" attributes, based on the type of the VIM. The set of permitted values is expected to change over time as new types or versions of VIMs become available. The ETSI NFV registry of VIM-related information provides access to information about VimConnectionInfo definitions for various VIM types. The structure of the registry is defined in Annex C of SOL003. | 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) |

resourceChanges

| Name | Description | Schema |
|---|--|---|
| affectedExtLinkPorts <i>optional</i> | Information about external VNF link ports that were affected during the lifecycle operation. See note 1. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedExtLinkPorts > array |
| affectedVirtualLinks <i>optional</i> | Information about VL instances that were affected during the lifecycle operation. See note 1 and note 2. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. NOTE 2: For a particular affected VL, there shall be as many "AffectedVirtualLink" entries as needed for signalling the different types of changes, i.e., one per virtual link and change type. For instance, in the case of signaling affected VL instances involving the addition of a particular VL instance with links ports, one "AffectedVirtualLink" entry signals the addition of the VL by using the "changeType" attribute of "AffectedVirtualLink" structure equal to "ADDED", and another "AffectedVirtualLink" entry signals the addition of externally visible VNF link ports of the VL by using the "changeType" equal to "LINK_PORT_ADDED". | < affectedVirtualLinks > array |
| affectedVirtualStorages <i>optional</i> | Information about virtualised storage instances that were affected during the lifecycle operation. This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedVirtualStorages > array |
| affectedVnfcs <i>optional</i> | Information about VNFC instances that were affected during the lifecycle operation. NOTE 1: This allows the NFVO to obtain the information contained in the latest "result" notification if it has not received it due to an error or a wrongly configured subscription filter. | < affectedVnfcs > array |

affectedExtLinkPorts

| Name | Description | Schema |
|--------------------------------------|---|-----------------------|
| changeType <i>required</i> | Signals the type of change. Permitted values: - ADDED - REMOVED | enum (ADDED, REMOVED) |

| Name | Description | Schema |
|--|--|--------------------------------|
| extCpInstanceId <i>required</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 |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVirtualLinks

| 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. NOTE 1: When signalling the addition (LINK_PORT_ADDED) or removal (LINK_PORT_REMOVED) of VNF link ports, the "networkResource" and "resourceDefinitionId" attributes refer to the affected virtual link instance, not the link port instance. The resource handles of the affected VNF link ports can be found by dereferencing the identifiers in the "vnfLinkPortIds" attribute. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY, LINK_PORT_ADDED, LINK_PORT_REMOVED) |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | 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 |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | string |

| Name | Description | Schema |
|--|--|------------------|
| vnfLinkPortIds <i>optional</i> | Identifiers of the link ports of the affected VL related to the change. Each identifier references a "VnfLinkPortInfo" structure. Shall be set when changeType is equal to "LINK_PORT_ADDED" or "LINK_PORT_REMOVED", and the related "VnfLinkPortInfo" structures are present (case "added") or have been present (case "removed") in the "VnfVirtualLinkResourceInfo" or "ExtManagedVirtualLinkInfo" structures that are represented by the "vnfVirtualLinkResource-Info" or "extManagedVirtualLinkInfo" attribute in the "VnfInstance" structure. See note 1. NOTE 1: When signalling the addition (LINK_PORT_ADDED) or removal (LINK_PORT_REMOVED) of VNF link ports, the "networkResource" and "resourceDefinitionId" attributes refer to the affected virtual link instance, not the link port instance. The resource handles of the affected VNF link ports can be found by dereferencing the identifiers in the "vnfLinkPortIds" attribute. | < string > array |
| vnfVirtualLinkDescId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | 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>optional</i> | An identifier with the intention of being globally unique. | string |

| Name | Description | Schema |
|--|---|--------|
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVirtualStorages

| Name | Description | Schema |
|--|---|--|
| changeType <i>required</i> | Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY For a temporary resource, an AffectedVirtualStorage structure exists as long as the temporary resource exists. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY) |
| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | 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> | An identifier that is unique within a VNF descriptor. | 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>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | string |

affectedVnfcs

| Name | Description | Schema |
|---|---|--|
| addedStorageResourceIds <i>optional</i> | References to VirtualStorage resources that have been added. Each value refers to a VirtualStorageResourceInfo item in the VnfInstance that was added to the VNFC. It shall be provided if at least one storage resource was added to the VNFC. | < string > array |
| affectedVnfcpIds <i>optional</i> | Identifiers of CP(s) of the VNFC instance that were affected by the change. Shall be present for those affected CPs of the VNFC instance that are associated to an external CP of the VNF instance. May be present for further affected CPs of the VNFC instance. | < string > array |
| changeType <i>required</i> | Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY For a temporary resource, an AffectedVnfcs structure exists as long as the temporary resource exists. | enum (ADDED, REMOVED, MODIFIED, TEMPORARY) |
| 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 |

| 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 keyvalue pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 8259. In the following example, a list of key-value pairs with four keys ("aString", "aNumber", "anArray" and "anObject") is provided to illustrate that the values associated with different keys can be of different type. | object |
| removedStorageResourceIds <i>optional</i> | References to VirtualStorage resources that have been removed. The value contains the identifier of a VirtualStorageResourceInfo item that has been removed from the VNFC, and might no longer exist in the VnfInstance. It shall be provided if at least one storage resource was removed from the VNFC. | < string > array |
| resourceDefinitionId <i>optional</i> | An identifier that is unique within a limited local scope other than above listed identifiers, such as within a complex data structure or within a request-response pair. Representation: string of variable length. | string |
| vduId <i>required</i> | An identifier that is unique within a VNF descriptor. | string |
| zoneId <i>optional</i> | An identifier with the intention of being globally unique. | string |

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 |

| Name | Description | Schema |
|--|---|--------|
| vimConnectionId <i>optional</i> | An identifier with the intention of being globally unique. | string |
| vimLevelResourceType <i>optional</i> | The value set of the "vimLevelResourceType" attribute is within the scope of the VIM or the resource provider and can be used as information that complements the ResourceHandle. This value set is different from the value set of the "type" attribute in the ResourceDefinition (refer to clause 9.5.3.2 in SOL003). | 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 |
| 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 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) |

Response 504

| 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) |

POST /vnf_lcm_op_occs/{vnfLcmOpOccId}/retry

Description

The POST method initiates retrying a VNF lifecycle operation if that operation has experienced a temporary failure, i.e. the related "Individual VNF LCM operation occurrence" resource is in "FAILED_TEMP" state. This method shall follow the provisions specified in the tables 5.4.14.3.1-1 and 5.4.14.3.1-2 for URI query parameters, request and response data structures, and response codes. In case of success of processing the asynchronous request, the "operationState" attribute in the representation of the parent resource shall be changed to "PROCESSING" and the applicable "start" notification according to clause 5.6.2.2 shall be emitted to indicate that the underlying VNF LCM operation occurrence proceeds.

Parameters

| Type | Name | Description | Schema |
|---------------|---|--|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |

| Type | Name | Description | Schema |
|--------|---|---|--------|
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfLcmOpOccId <i>required</i> | Identifier of a VNF 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 PATCH or POST request triggering a VNF LCM operation. It can also be retrieved from the "vnfLcmOpOccId" attribute in the VnfLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response shall have an empty payload body.</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> <p>Version (string) : The used API version.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |

POST /vnf_lcm_op_occs/{vnfLcmOpOccId}/rollback

Description

The POST method initiates rolling back a VNF lifecycle operation if that operation has experienced a temporary failure, i.e. the related "Individual VNF LCM operation occurrence" resource is in "FAILED_TEMP" state. In case of rolling back an occurrence of the "InstantiateVnf" operation, the VNFM shall request to the VIM the release of the virtualised resources that were allocated for the related VNF instance. The "rollback" task shall be supported by the VNFM for any VNF LCM operation occurrence that represents an "InstantiateVnf" operation in FAILED_TEMP state. This method shall follow the provisions specified in the tables 5.4.15.3.1-1 and 5.4.15.3.1-2 for URI query parameters, request and response data structures, and response codes. In case of success of processing the asynchronous request, the "operationState" attribute in the representation of the parent resource shall be changed to "ROLLING_BACK" and the applicable "start" notification according to clause 5.6.2.2 shall be emitted to indicate that rollback of the underlying VNF LCM operation occurrence is attempted.

Parameters

| Type | Name | Description | Schema |
|--------|---|---|--------|
| Header | Authorization <i>optional</i> | The authorization token for the request. Reference: IETF RFC 7235 | string |
| Header | Version <i>required</i> | Version of the API requested to use when responding to this request. | string |
| Path | vnfLcmOpOccId <i>required</i> | Identifier of a VNF 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 PATCH or POST request triggering a VNF LCM operation. It can also be retrieved from the "vnfLcmOpOccId" attribute in the VnfLcmOperationOccurrenceNotification. | string |

Responses

| HTTP Code | Description | Schema |
|-----------|--|------------|
| 202 | <p>202 ACCEPTED Shall be returned when the request has been accepted for processing. The response shall have an empty payload body.</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> <p>Version (string) : The used API version.</p> | No Content |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 400 | <p>400 BAD REQUEST 400 code can be returned in the following specified cases, the specific cause has to be proper specified in the "ProblemDetails" structure to be returned. If the request is malformed or syntactically incorrect (e.g. if the request URI contains incorrect query parameters or the payload body contains a syntactically incorrect data structure), the API producer shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If the response to a GET request which queries a container resource would be so big that the performance of the API producer is adversely affected, and the API producer does not support paging for the affected resource, it shall respond with this response code. The "ProblemDetails" structure shall be provided, and should include in the "detail" attribute more information about the source of the problem. If there is an application error 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. If the request contains a malformed access token, 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. The use of this HTTP error response code described above is applicable to the use of the OAuth 2.0 for the authorization of API requests and notifications, as defined in clauses 4.5.3.3 and 4.5.3.4.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 400</p> |

| HTTP Code | Description | Schema |
|-----------|---|-------------------------------------|
| 401 | <p>401 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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 401</p> |
| 403 | <p>403 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> <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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 403</p> |

| HTTP Code | Description | Schema |
|-----------|--|-------------------------------------|
| 404 | <p>404 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. This response code is not appropriate in case the resource addressed by the URI is a container resource which is designed to contain child resources, but does not contain any child resource at the time the request is received. For a GET request to an existing empty container resource, a typical response contains a 200 OK response code and a payload body with an empty array.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 404</p> |
| 405 | <p>405 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 405</p> |
| 406 | <p>406 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.</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> <p>Version (string) : Version of the API used in the response.</p> | <p>Response 406</p> |

| HTTP Code | Description | Schema |
|-----------|--|--------------|
| 409 | <p>409 CONFLICT</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> <p>Version (string) : Version of the API used in the response.</p> | Response 409 |
| 500 | <p>500 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 500 |
| 503 | <p>503 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 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 :</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> <p>Version (string) : Version of the API used in the response.</p> | Response 503 |

| HTTP Code | Description | Schema |
|-----------|---|------------------------------|
| 504 | <p>504 GATEWAY TIMEOUT If the API producer encounters a timeout while waiting for a response from an upstream server (i.e. a server that the API producer communicates with when fulfilling a request), it should respond with this response code.</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> <p>Version (string) : Version of the API used in the response.</p> | Response 504 |

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 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) |

Response 504

| 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) |