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. In clause 4.3.2 of ETSI GS NFV-SOL 003 v2.4.1, an attribute-based filtering mechanism is defined. This mechanism is currently not included in the corresponding OpenAPI design for this GS version. Changes to the attribute-based filtering mechanism are being considered in v2.5.1 of this GS for inclusion in the corresponding future ETSI NFV OpenAPI design. Please report bugs to https://forge.etsi.org/bugzilla/buglist.cgi?component=Nfv-Openapis&list_id=61&product=NFV&resolution=

Version information

Version : 1.2.0-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 V2.5.1
URL : https://www.etsi.org/deliver/etsi_gs/NFV-SOL/001_099/003/02.05.01_60/gs_nfv-sol003v020501p.pdf

Paths

Retrieve API version information

```
GET /api-versions
```

Description

The GET method reads API version information. This method shall follow the provisions specified in table 4.6.3.3.3.2-1 for request and response data structures, and response codes. URI query parameters are not supported.

Parameters

Type	Name	Description	Schema
Header	**Version** *optional*	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	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406

HTTP Code	Description	Schema
413	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. **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.	Response 413
414	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. **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.	Response 414
416	416 RANGE NOT SATISFIABLE **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.	Response 416

HTTP Code	Description	Schema
422	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. **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.	Response 422
429	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. **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.	Response 429

HTTP Code	Description	Schema
500	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. **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.	Response 500
503	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. **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.	Response 503
504	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. **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.	Response 504

Response 200

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

apiVersions

Name	Description	Schema
isDeprecated *optional*	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 *optional*	Date-time stamp. Representation: String formatted according to IETF RFC 3339.	string (date-time)
version *required*	Identifies a supported version. The value of the version attribute shall be a version identifier as specified in clause 4.6.1.	string

Response 400

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

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

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

Name	Description	Schema
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for 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. Creation of two subscription resources with the same callbackURI and the same filter can result in performance degradation and will provide duplicates of notifications to the NFVO, and might make sense only in very rare use cases. Consequently, the VNFM may either allow creating a subscription resource if another subscription resource with the same filter and callbackUri already exists (in which case it shall return the "201 Created" response code), or may decide to not create a duplicate subscription resource (in which case it shall return a "303 See Other" response code referencing the existing subscription resource with the same filter and callbackUri).

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Body	**LccnSubscriptionRequest** *required*	Details of the subscription to be created.	LccnSubscriptionRequest

LccnSubscriptionRequest

Name	Description	Schema
authenticatio n *optional*		authentication
callbackUri *required*	String formatted according to IETF RFC 3986.	string
filter *optional*	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 *required*	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_CR EDENTIALS, TLS_CERT) > array
paramsBasic *optional*	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
paramsOauth 2ClientCreden tials *optional*	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.	paramsOauth2Client Credentials

paramsBasic

Name	Description	Schema
password *optional*	Password to be used in HTTP Basic authentication. Shall be present if it has not been provisioned out of band.	string
userName *optional*	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 *optional*	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
clientPasswor d *optional*	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
tokenEndpoin t *optional*	String formatted according to IETF RFC 3986.	string

filter

Name	Description	Schema
notificationTypes *optional*	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 *optional*	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 *optional*	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 *optional*	This type represents subscription filter criteria to match VNF instances.	vnfInstanceSubscriptionFilter

vnfInstanceSubscriptionFilter

Name	Description	Schema
vnfInstanceIds *optional*	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
vnfInstanceN ames *optional*	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
vnfProductsFr omProviders *optional*	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.	< vnfProductsFromPr oviders > array
vnfdIds *optional*	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 *optional*	If present, match VNF instances that belong to VNF products with certain product names, from one particular provider.	< vnfProducts > array
vnfProvider *required*	Name of the VNF provider to match.	string

vnfProducts

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

versions

Name	Description	Schema
vnfSoftwareVersion *required*	A version.	string
vnfdVersions *optional*	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	201 CREATED The subscription was created successfully. The response body shall contain a representation of the created subscription resource. The HTTP response shall include a "Location" HTTP header that points to the created subscription resource. **Headers** : Content-Type (string) : The MIME type of the body of the response. Location (string (url)) : The resource URI of the created VNF instance. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. Version (string) : Version of the API used in the response.	Response 201
303	See Other A subscription with the same callbackURI and the same filter already exists and the policy of the VNFM is to not create redundant subscriptions. The HTTP response shall include a "Location" HTTP header that contains the resource URI of the existing subscription resource. The response body shall be empty. **Headers** : Location (string (url)) : The resource URI of the created VNF instance. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. Version (string) : Version of the API used in the response.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 201

Name	Description	Schema
_links *required*	Links to resources related to this resource.	_links
callbackUri *required*	String formatted according to IETF RFC 3986.	string
filter *optional*	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 *required*	An identifier with the intention of being globally unique.	string

_links

Name	Description	Schema
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

filter

Name	Description	Schema
notificationTypes *optional*	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 *optional*	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 *optional*	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 *optional*	This type represents subscription filter criteria to match VNF instances.	vnfInstanceSubscriptionFilter

vnfInstanceSubscriptionFilter

Name	Description	Schema
vnfInstanceIds *optional*	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
vnfInstanceN ames *optional*	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
vnfProductsFr omProviders *optional*	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.	< vnfProductsFromPr oviders > array
vnfdIds *optional*	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 *optional*	If present, match VNF instances that belong to VNF products with certain product names, from one particular provider.	< vnfProducts > array
vnfProvider *required*	Name of the VNF provider to match.	string

vnfProducts

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

versions

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

Name	Description	Schema
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for 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** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Query	**filter** *optional*	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** *optional*	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	200 OK The list of subscriptions was queried successfully. The response body shall contain the in an array 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 VNFM supports alternative 2 (paging) according to clause 4.7.2.1 for this resource, inclusion of the Link HTTP header in this response shall follow the provisions in clause 4.7.2.3. **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. `Link` (string) : Reference to other resources. Used for paging in the present document, see clause 4.7.2.1.	Response 200
400	Bad Request Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 200

Name	Description	Schema
_links *required*	Links to resources related to this resource.	_links
callbackUri *required*	String formatted according to IETF RFC 3986.	string
filter *optional*	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 *required*	An identifier with the intention of being globally unique.	string

_links

Name	Description	Schema
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

filter

Name	Description	Schema
notificationTy pes *optional*	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 (VnfLcmOperationO ccurrenceNotificatio n, VnfIdentifierCreatio nNotification, VnfIdentifierDeletio nNotification) > array
operationStat es *optional*	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
operationTyp es *optional*	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
vnfInstanceSu bscriptionFilt er *optional*	This type represents subscription filter criteria to match VNF instances.	vnfInstanceSubscrip tionFilter

vnfInstanceSubscriptionFilter

Name	Description	Schema
vnfInstanceId s *optional*	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
vnfInstanceN ames *optional*	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
vnfProductsFr omProviders *optional*	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.	< vnfProductsFromPr oviders > array
vnfdIds *optional*	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 *optional*	If present, match VNF instances that belong to VNF products with certain product names, from one particular provider.	< vnfProducts > array
vnfProvider *required*	Name of the VNF provider to match.	string

vnfProducts

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

versions

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**subscriptionId** *required*	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	200 OK The operation has completed successfully. The response body shall contain a representation of the subscription resource. **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.	Response 200

200 OK The operation has completed successfully. The response body shall contain a representation of the subscription resource.

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 200

Name	Description	Schema
_links *required*	Links to resources related to this resource.	_links
callbackUri *required*	String formatted according to IETF RFC 3986.	string
filter *optional*	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 *required*	An identifier with the intention of being globally unique.	string

_links

Name	Description	Schema
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

filter

Name	Description	Schema
notificationTy pes *optional*	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 (VnfLcmOperationO ccurrenceNotificatio n, VnfIdentifierCreatio nNotification, VnfIdentifierDeletio nNotification) > array
operationStat es *optional*	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
operationTyp es *optional*	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
vnfInstanceSu bscriptionFilt er *optional*	This type represents subscription filter criteria to match VNF instances.	vnfInstanceSubscrip tionFilter

vnfInstanceSubscriptionFilter

Name	Description	Schema
vnfInstanceId s *optional*	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
vnfInstanceN ames *optional*	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
vnfProductsFr omProviders *optional*	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 *optional*	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 *optional*	If present, match VNF instances that belong to VNF products with certain product names, from one particular provider.	< vnfProducts > array
vnfProvider *required*	Name of the VNF provider to match.	string

vnfProducts

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

versions

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

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

Parameters

Type	Name	Description	Schema
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**subscriptionId** *required*	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	204 NO CONTENT The subscription resource was deleted successfully. The response body shall be empty. **Headers** : WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. Version (string) : Version of the API used in the response.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 400

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

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

Create VNF Identifier

The POST method creates a new VNF instance resource.

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Body	**createVnfRequest** *required*	The VNF creation parameters	createVnfRequest

createVnfRequest

Name	Description	Schema
vnfInstanceDescription *optional*	Human-readable description of the VNF instance to be created.	string
vnfInstanceName *optional*	Human-readable name of the VNF instance to be created.	string
vnfdId *required*	An identifier with the intention of being globally unique.	string

Responses

HTTP Code	Description	Schema
201	A VNF Instance identifier was created successfully **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. `Version` (string) : Version of the API used in the response.	Response 201

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
416	416 RANGE NOT SATISFIABLE **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.	Response 416

HTTP Code	Description	Schema
422	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. **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.	Response 422
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 201

Name	Description	Schema
_links *optional*	Links to resources related to this resource.	_links
extensions *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
instantiatedVnfInfo *optional*	Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED.	instantiatedVnfInfo
instantiationState *required*	The instantiation state of the VNF.	enum (NOT_INSTANTIATED, INSTANTIATED)
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimConnectionInfo *optional*	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
vnfConfigurableProperties *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfInstanceDescription *optional*	Human-readable description of the VNF instance. This attribute can be modified with the PATCH method.	string
vnfInstanceName *optional*	Name of the VNF instance. This attribute can be modified with the PATCH method.	string

Name	Description	Schema
vnfPkgId *required*	An identifier with the intention of being globally unique.	string
vnfProductNa me *required*	Name to identify the VNF Product. The value is copied from the VNFD.	string
vnfProvider *required*	Provider of the VNF and the VNFD. The value is copied from the VNFD.	string
vnfSoftwareV ersion *required*	A Version.	string
vnfdId *required*	An identifier with the intention of being globally unique.	string
vnfdVersion *required*	A Version.	string

_links

Name	Description	Schema
changeExtCon n *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavou r *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate

Name	Description	Schema
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

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

Name	Description	Schema
vnfcResourceInfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< [vnfcResourceInfo](#) > array

extCpInfo

Name	Description	Schema
associatedVnfVirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnfcCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInfo *required*	Network protocol information for this CP.	< [cpProtocolInfo](#) > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	[ipOverEthernet](#)

Name	Description	Schema
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string

Name	Description	Schema
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string

Name	Description	Schema
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string

Name	Description	Schema
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string

Name	Description	Schema
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResour ce *required*	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
virtualStorag eDescId *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string

Name	Description	Schema
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInfo *optional*	Network protocol information for this CP.	< [cpProtocolInfo](#) > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	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 *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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

Name	Description	Schema
subnetId *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Name	Description	Schema
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for 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** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string

Type	Name	Description	Schema
Query	**all_fields** *optional*	Include all complex attributes in the response. See clause 4.3.3 for details. The VNFM shall support this parameter.	string
Query	**exclude_defau lt** *optional*	Indicates to exclude the following complex attributes from the response. See clause 4.3.3 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** *optional*	Complex attributes to be excluded from the response. See clause 4.3.3 for details. The VNFM should support this parameter.	string
Query	**fields** *optional*	Complex attributes to be included into the response. See clause 4.3.3 for details. The VNFM should support this parameter.	string
Query	**filter** *optional*	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 VnfInstance and in data types referenced from it shall be supported by the VNFM in the filter expression.	string
Query	**nextpage_opa que_marker** *optional*	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	OK Information about zero or more VNF instances was 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 VNFM supports alternative 2 (paging) according to clause 4.7.2.1 for this resource, inclusion of the Link HTTP header in this response shall follow the provisions in clause 4.7.2.3. **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. `Link` (string) : Reference to other resources. Used for paging in the present document, see clause 4.7.2.1.	< Response 200 > array

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
416	416 RANGE NOT SATISFIABLE **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.	Response 416
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 200

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

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

_links

Name	Description	Schema
changeExtCon n *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavou r *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringPa rameters *optional*	Active monitoring parameters.	< monitoringParamete rs > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkRe sourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResource Info > array
virtualStorag eResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResou rceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceI nfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnf VirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnf cCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInf o *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResou rce *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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
vnfVirtualLin kDescId *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInfo *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	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 *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string

Type	Name	Description	Schema
Path	**vnfInstanceId** *required*	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	OK Information about zero or more VNF instances was queried successfully. The response body shall contain representations of zero or more VNF instances. **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.	Response 200

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
416	416 RANGE NOT SATISFIABLE **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.	Response 416
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 200

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

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

_links

Name	Description	Schema
changeExtConn *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavour *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringPa rameters *optional*	Active monitoring parameters.	< monitoringParamete rs > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkRe sourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResource Info > array
virtualStorag eResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResou rceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceI nfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnf VirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnf cCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInf o *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResou rce *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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
vnfVirtualLin kDescId *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInfo *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	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 *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Parameters

Type	Name	Description	Schema
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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	No Content The VNF instance resource and the associated VNF identifier were deleted successfully. The response body shall be empty. **Headers** : `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. `Version` (string) : Version of the API used in the response.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in INSTANTIATED state. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
412	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. **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.	Response 412

HTTP Code	Description	Schema
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 400

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

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

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

Parameters

Type	Name	Description	Schema
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The Content-Type header shall be set to "application/merge-patch+json" according to IETF RFC 7396.	enum (application/merge-patch+json)
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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** *required*	Input parameters for VNF info modification.	VnfInfoModificationRequest

VnfInfoModificationRequest

Name	Description	Schema
extensions *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimConnectionInfo *optional*	New content of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance", as defined below this table.	< vimConnectionInfo > array
vimConnectionInfoDeleteIds *optional*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfInstanceDescription *optional*	New value of the "vnfInstanceDescription" attribute in "VnfInstance", or "null" to remove the attribute.	string
vnfInstanceName *optional*	New value of the "vnfInstanceName" attribute in "VnfInstance", or "null" to remove the attribute.	string
vnfPkgId *optional*	An identifier with the intention of being globally unique.	string

vimConnectionInfo

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

Name	Description	Schema
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. The response body shall be empty. **Headers** : Location (string (url)) : The resource URI of the created VNF instance. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that another LCM operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
412	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. **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.	Response 412

HTTP Code	Description	Schema
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 400

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

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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 VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response.	string
Body	**ChangeExtVnf ConnectivityR equest** *required*	Parameters for the Change external VNF connectivity operation.	ChangeExtVnfConne ctivityRequest

ChangeExtVnfConnectivityRequest

Name	Description	Schema
additionalPar ams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extVirtualLin ks *required*	Information about external VLs to change (e.g. connect the VNF to).	< extVirtualLinks > array
vimConnectio nInfo *optional*	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 *required*	External CPs of the VNF to be connected to this external VL.	< extCps > array
extLinkPorts *optional*	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 *required*	An identifier with the intention of being globally unique.	string
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string

extCps

Name	Description	Schema
cpConfig *optional*	List of instance data that need to be configured on the CP instances created from the respective CPD.	< cpConfig > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string

cpConfig

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpProtocolDat a *optional*	Parameters for configuring the network protocols on the link port that connects the CP to a VL. The following conditions apply to the attributes "linkPortId" and "cpProtocolData": * The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. * At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. * If the "linkPortId" attribute is absent, the VNFM shall create a link port. * If the "cpProtocolData" attribute is absent, the "linkPortId" attribute shall be provided referencing a pre-created link port, and the VNFM can use means outside the scope of the present document to obtain the pre-configured address information for the connection point from the resource representing the link port. * If both "cpProtocolData" and "linkportId" are provided, the API consumer shall ensure that the cpProtocolData can be used with the pre-created link port referenced by "linkPortId".	< cpProtocolData > array
linkPortId *optional*	An identifier with the intention of being globally unique.	string

cpProtocolData

Name	Description	Schema
ipOverEthern et *optional*	This type represents network address data for IP over Ethernet.	ipOverEthernet

Name	Description	Schema
layerProtocol *required*	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 *optional*	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 *optional*	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 *optional*	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 *optional*	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
numDynamic Addresses *optional*	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 *optional*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vimConnectionInfo

Name	Description	Schema
accessInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 202

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that another LCM operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 202

Name	Description	Schema
_links *optional*	Links to resources related to this resource.	_links
extensions *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
instantiatedV nfInfo *optional*	Information specific to an instantiated VNF instance. This attribute shall be present if the instantiateState attribute value is INSTANTIATED.	instantiatedVnfInfo
instantiationS tate *required*	The instantiation state of the VNF.	enum (NOT_INSTANTIATE D, INSTANTIATED)
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

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

_links

Name	Description	Schema
changeExtCon n *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavou r *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringParameters *optional*	Active monitoring parameters.	< monitoringParameters > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkResourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResourceInfo > array
virtualStorageeResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResourceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceInfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnfVirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnfcCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInfo *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthern et *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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_ETHERNE T)

ipOverEthernet

Name	Description	Schema
ipAddresses *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInfo *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	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 *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

The POST method changes the deployment flavour of a VNF instance.

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string

Type	Name	Description	Schema
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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 VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response.	string
Body	**ChangeVnfFlavourRequest** *required*	Parameters for the Change VNF Flavour operation.	ChangeVnfFlavourRequest

ChangeVnfFlavourRequest

Name	Description	Schema
additionalParams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extManagedVirtualLinks *optional*	Information about internal VLs that are managed by the NFVO.	< extManagedVirtualLinks > array
extVirtualLinks *optional*	Information about external VLs to connect the VNF to.	< extVirtualLinks > array
instantiationLevelId *optional*	An identifier that is unique within a VNF descriptor.	string
newFlavourId *required*	An identifier that is unique within a VNF descriptor.	string

Name	Description	Schema
vimConnectionInfo *optional*	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

extManagedVirtualLinks

Name	Description	Schema
id *required*	An identifier with the intention of being globally unique.	string
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vnfVirtualLinkDescId *optional*	An identifier that is unique within a VNF descriptor.	string

extVirtualLinks

Name	Description	Schema
extCps *required*	External CPs of the VNF to be connected to this external VL.	< extCps > array
extLinkPorts *optional*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string

extCps

Name	Description	Schema
cpConfig *optional*	List of instance data that need to be configured on the CP instances created from the respective CPD.	< cpConfig > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string

cpConfig

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpProtocolDat a *optional*	Parameters for configuring the network protocols on the link port that connects the CP to a VL. The following conditions apply to the attributes "linkPortId" and "cpProtocolData": * The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. * At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. * If the "linkPortId" attribute is absent, the VNFM shall create a link port. * If the "cpProtocolData" attribute is absent, the "linkPortId" attribute shall be provided referencing a pre-created link port, and the VNFM can use means outside the scope of the present document to obtain the pre-configured address information for the connection point from the resource representing the link port. * If both "cpProtocolData" and "linkportId" are provided, the API consumer shall ensure that the cpProtocolData can be used with the pre-created link port referenced by "linkPortId".	< cpProtocolData > array
linkPortId *optional*	An identifier with the intention of being globally unique.	string

cpProtocolData

Name	Description	Schema
ipOverEthern et *optional*	This type represents network address data for IP over Ethernet.	ipOverEthernet
layerProtocol *required*	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_ETHERNE T)

ipOverEthernet

Name	Description	Schema
ipAddresses *optional*	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 *optional*	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 *optional*	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 *optional*	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
numDynamic Addresses *optional*	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 *optional*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vimConnectionInfo

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

Name	Description	Schema
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 202

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 202

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

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

_links

Name	Description	Schema
changeExtCon n *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavou r *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringPa rameters *optional*	Active monitoring parameters.	< monitoringParamete rs > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkRe sourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResource Info > array
virtualStorag eResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResou rceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceI nfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnf VirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnf cCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInf o *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInfo *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	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 *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string

Type	Name	Description	Schema
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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 VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response.	string
Body	**HealVnfRequest** *required*	Parameters for the Heal VNF operation.	HealVnfRequest

HealVnfRequest

Name	Description	Schema
additionalParams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
cause *optional*	Indicates the reason why a healing procedure is required.	string

Responses

HTTP Code	Description	Schema
202	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 202

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 202

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

Name	Description	Schema
vimConnectio nInfo *optional*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfInstanceDe scription *optional*	Human-readable description of the VNF instance. This attribute can be modified with the PATCH method.	string
vnfInstanceN ame *optional*	Name of the VNF instance. This attribute can be modified with the PATCH method.	string
vnfPkgId *required*	An identifier with the intention of being globally unique.	string
vnfProductNa me *required*	Name to identify the VNF Product. The value is copied from the VNFD.	string
vnfProvider *required*	Provider of the VNF and the VNFD. The value is copied from the VNFD.	string
vnfSoftwareV ersion *required*	A Version.	string
vnfdId *required*	An identifier with the intention of being globally unique.	string
vnfdVersion *required*	A Version.	string

_links

Name	Description	Schema
changeExtConn *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavour *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringParameters *optional*	Active monitoring parameters.	< monitoringParameters > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkResourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResourceInfo > array
virtualStorageeResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResourceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceInfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnfVirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnfcCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInfo *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInf o *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

cpProtocolInfo

Name	Description	Schema
ipOverEthern et *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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_ETHERNE T)

ipOverEthernet

Name	Description	Schema
ipAddresses *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string

Type	Name	Description	Schema
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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	**InstantiateVnf Request** *required*	Parameters for the VNF instantiation.	InstantiateVnfReque st

InstantiateVnfRequest

Name	Description	Schema
additionalPar ams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extManagedVi rtualLinks *optional*	Information about internal VLs that are managed by the NFVO.	< extManagedVirtualL inks > array
extVirtualLin ks *optional*	Information about external VLs to connect the VNF to.	< extVirtualLinks > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
instantiationL evelId *optional*	An identifier that is unique within a VNF descriptor.	string
localizationLa nguage *optional*	Localization language of the VNF to be instantiated. The value shall comply with the format defined in IETF RFC 5646.	string

Name	Description	Schema
vimConnectionInfo *optional*	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

extManagedVirtualLinks

Name	Description	Schema
id *required*	An identifier with the intention of being globally unique.	string
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vnfVirtualLinkDescId *optional*	An identifier that is unique within a VNF descriptor.	string

extVirtualLinks

Name	Description	Schema
extCps *required*	External CPs of the VNF to be connected to this external VL.	< extCps > array
extLinkPorts *optional*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string

extCps

Name	Description	Schema
cpConfig *optional*	List of instance data that need to be configured on the CP instances created from the respective CPD.	< cpConfig > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string

cpConfig

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpProtocolDat a *optional*	Parameters for configuring the network protocols on the link port that connects the CP to a VL. The following conditions apply to the attributes "linkPortId" and "cpProtocolData": * The "linkPortId" and "cpProtocolData" attributes shall both be absent for the deletion of an existing external CP instance addressed by cpInstanceId. * At least one of these attributes shall be present for a to-be-created external CP instance or an existing external CP instance. * If the "linkPortId" attribute is absent, the VNFM shall create a link port. * If the "cpProtocolData" attribute is absent, the "linkPortId" attribute shall be provided referencing a pre-created link port, and the VNFM can use means outside the scope of the present document to obtain the pre-configured address information for the connection point from the resource representing the link port. * If both "cpProtocolData" and "linkportId" are provided, the API consumer shall ensure that the cpProtocolData can be used with the pre-created link port referenced by "linkPortId".	< cpProtocolData > array
linkPortId *optional*	An identifier with the intention of being globally unique.	string

cpProtocolData

Name	Description	Schema
ipOverEthern et *optional*	This type represents network address data for IP over Ethernet.	ipOverEthernet
layerProtocol *required*	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_ETHERNE T)

ipOverEthernet

Name	Description	Schema
ipAddresses *optional*	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 *optional*	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 *optional*	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 *optional*	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
numDynamic Addresses *optional*	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 *optional*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vimConnectionInfo

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

Name	Description	Schema
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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	Accepted The request was accepted for processing, but the processing has not been completed. The response body shall be empty. The HTTP response shall include a "Location" HTTP header that contains the URI of the newly-created "VNF LCM operation occurrence" resource corresponding to the operation. **Headers** : `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. `Version` (string) : Version of the API used in the response.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in INSTANTIATED state. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
416	416 RANGE NOT SATISFIABLE **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.	Response 416

HTTP Code	Description	Schema
500	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. **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.	Response 500
503	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. **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.	Response 503

Response 400

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

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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 VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response.	string
Body	**OperateVnfRequest** *required*	Parameters for the Operate VNF operation.	OperateVnfRequest

OperateVnfRequest

Name	Description	Schema
additionalParams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
changeStateTo *required*		enum (STARTED, STOPPED)
gracefulStopTimeout *optional*	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 *optional*	• FORCEFUL: The VNFM will stop the VNF immediately after accepting the request. • GRACEFUL: The VNFM will first arrange to take the VNF out of service after accepting the request. Once that operation is successful or once the timer value specified in the "gracefulStopTimeout" attribute expires, the VNFM will stop the VNF.	enum (FORCEFUL, GRACEFUL)

Responses

HTTP Code	Description	Schema
202	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 202

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 202

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

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

_links

Name	Description	Schema
changeExtCon n *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavou r *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringPa rameters *optional*	Active monitoring parameters.	< monitoringParamete rs > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkRe sourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResource Info > array
virtualStorag eResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResou rceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceI nfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnf VirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnf cCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInf o *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource required	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 optional	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId required	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 required	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId optional	An identifier with the intention of being globally unique.	string
vimConnectionId optional	An identifier with the intention of being globally unique.	string
vimLevelResourceType optional	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId optional	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType optional	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInfo *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	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 *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string

Type	Name	Description	Schema
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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 VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response.	string
Body	**ScaleVnfRequest** *required*	Parameters for the scale VNF operation.	ScaleVnfRequest

ScaleVnfRequest

Name	Description	Schema
additionalParams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
aspectId *required*	An identifier that is unique within a VNF descriptor.	string
numberOfSteps *optional*	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
type *required*	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	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 202

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 202

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

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

_links

Name	Description	Schema
changeExtConn *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavour *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringPa rameters *optional*	Active monitoring parameters.	< monitoringParamete rs > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkRe sourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResource Info > array
virtualStorag eResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResou rceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceI nfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnf VirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnf cCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInf o *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResou rce *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLin kDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceTy pe *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceType *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInf o *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

cpProtocolInfo

Name	Description	Schema
ipOverEthern et *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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_ETHERNE T)

ipOverEthernet

Name	Description	Schema
ipAddresses *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string

Type	Name	Description	Schema
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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 VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response.	string
Body	**ScaleVnfToLevelRequest** *required*	Parameters for the scale VNF to Level operation.	ScaleVnfToLevelRequest

ScaleVnfToLevelRequest

Name	Description	Schema
additionalParams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
instantiationLevelId *optional*	An identifier that is unique within a VNF descriptor.	string
scaleInfo *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	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	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 202

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 202

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

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

_links

Name	Description	Schema
changeExtCon n *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavou r *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringPa rameters *optional*	Active monitoring parameters.	< monitoringParamete rs > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkRe sourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResource Info > array
virtualStorag eResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResou rceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceI nfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnf VirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnf cCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInf o *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInf o *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

cpProtocolInfo

Name	Description	Schema
ipOverEthern et *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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_ETHERNE T)

ipOverEthernet

Name	Description	Schema
ipAddresses *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Content-Type** *required*	The MIME type of the body of the request. Reference: IETF RFC 7231	string

Type	Name	Description	Schema
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfInstanceId** *required*	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 VNF instance resource. It can also be retrieved from the "id" attribute in the payload body of that response.	string
Body	**TerminateVnf Request** *required*	Parameters for the VNF termination.	TerminateVnfReque st

TerminateVnfRequest

Name	Description	Schema
additionalPar ams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
gracefulTermi nationTimeou t *optional*	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
terminationT ype *required*	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	Accepted The request was accepted for processing, but the processing has not been completed. On success, 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. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `Location` (string (url)) : The resource URI of the created VNF instance. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 202

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is in NOT-INSTANTIATED state, or that another lifecycle management operation is ongoing. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 202

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

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

_links

Name	Description	Schema
changeExtConn *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeExtConn
changeFlavour *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	changeFlavour
heal *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	heal
indicators *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	indicators
instantiate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	instantiate
operate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	operate
scale *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scale
scaleToLevel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	scaleToLevel
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
terminate *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	terminate

changeExtConn

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changeFlavour

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

heal

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

indicators

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

operate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scale

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

scaleToLevel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

terminate

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

instantiatedVnfInfo

Name	Description	Schema
extCpInfo *optional*	Information about the external CPs exposed by the VNF instance.	< extCpInfo > array
extManagedVirtualLinkInfo *optional*	External virtual links the VNF instance is connected to.	< extManagedVirtualLinkInfo > array
extVirtualLinkInfo *optional*	Information about the external VLs the VNF instance is connected to.	< extVirtualLinkInfo > array
flavourId *required*	An identifier that is unique within a VNF descriptor.	string
localizationLanguage *optional*	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
monitoringPa rameters *optional*	Active monitoring parameters.	< monitoringParamete rs > array
scaleStatus *optional*	Scale status of the VNF, one entry per aspect. Represents for every scaling aspect how "big" the VNF has been scaled w.r.t. that aspect.	< scaleStatus > array
virtualLinkRe sourceInfo *optional*	Information about the virtualised network resources used by the VLs of the VNF instance.	< virtualLinkResource Info > array
virtualStorag eResourceInfo *optional*	Information on the virtualised storage resource(s) used as storage for the VNF instance.	< virtualStorageResou rceInfo > array
vnfState *required*		enum (STARTED, STOPPED)
vnfcResourceI nfo *optional*	Information about the virtualised compute and storage resources used by the VNFCs of the VNF instance.	< vnfcResourceInfo > array

extCpInfo

Name	Description	Schema
associatedVnf VirtualLinkId *optional*	An identifier with the intention of being globally unique.	string
associatedVnf cCpId *optional*	An identifier with the intention of being globally unique.	string
cpProtocolInf o *required*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
extLinkPortId *optional*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

cpProtocolInfo

Name	Description	Schema
ipOverEthernet *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange

Name	Description	Schema
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *required*	An identifier with the intention of being globally unique.	string

Name	Description	Schema
networkResource *required*	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 *optional*	Link ports of this VL.	< vnfLinkPorts > array
vnfVirtualLinkDescId *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
cpInstanceType *optional*	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)

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

extVirtualLinkInfo

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

Name	Description	Schema
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

monitoringParameters

Name	Description	Schema
id *required*	An identifier that is unique within a VNF descriptor.	string
name *optional*	Human readable name of the monitoring parameter, as defined in the VNFD.	string
performance Metric *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string
scaleLevel *required*	Indicates the scale level. The minimum value shall be 0 and the maximum value shall be <= maxScaleLevel as described in the VNFD.	integer

virtualLinkResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
networkResource *required*	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 *optional*	An identifier with the intention of being globally unique.	string
vnfLinkPorts *optional*	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 *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

vnfLinkPorts

Name	Description	Schema
cpInstanceId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
cpInstanceTy pe *optional*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

virtualStorageResourceInfo

Name	Description	Schema
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

vnfcResourceInfo

Name	Description	Schema
computeResource *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string

Name	Description	Schema
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
reservationId *optional*	An identifier with the intention of being globally unique.	string
storageResourceIds *optional*	References to the VirtualStorage resources. The value refers to a VirtualStorageResourceInfo item in the VnfInstance.	< string > array
vduId *required*	An identifier that is unique within a VNF descriptor.	string
vnfcCpInfo *optional*	CPs of the VNFC instance. Shall be present when that particular CP of the VNFC instance is associated to an external CP of the VNF instance. May be present otherwise.	< vnfcCpInfo > array

computeResource

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

vnfcCpInfo

Name	Description	Schema
cpProtocolInfo *optional*	Network protocol information for this CP.	< cpProtocolInfo > array
cpdId *required*	An identifier that is unique within a VNF descriptor.	string
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vnfExtCpId *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
vnfLinkPortId *optional*	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 *optional*	This type represents information about a network address that has been assigned.	ipOverEthernet
layerProtocol *required*	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 *optional*	Addresses assigned to the CP instance. Each entry represents IP addresses assigned by fixed or dynamic IP address assignment per subnet.	< ipAddresses > array

Name	Description	Schema
macAddress *optional*	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 *optional*	An IP address range used, e.g., in case of egress connections. Exactly one of "addresses" or "addressRange" shall be present.	addressRange
addresses *optional*	Fixed addresses assigned (from the subnet defined by "subnetId" if provided). Exactly one of "addresses" or "addressRange" shall be present.	< string (IP) > array
isDynamic *optional*	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 *optional*	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)
type *required*	The type of the IP addresses. Permitted values: IPV4, IPV6.	enum (IPV4, IPV6)

addressRange

Name	Description	Schema
maxAddress *required*	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 *required*	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 *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string

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

Name	Description	Schema
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for 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 client can use this method to query status information about multiple VNF lifecycle management operation occurrences.

Parameters

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

Type	Name	Description	Schema
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Query	**all_fields** *optional*	Include all complex attributes in the response. See clause 4.3.3 for details. The VNFM shall support this parameter.	string
Query	**exclude_defau lt** *optional*	Indicates to exclude the following complex attributes from the response. See clause 4.3.3 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** *optional*	Complex attributes to be excluded from the response. See clause 4.3.3 for details. The VNFM should support this parameter.	string
Query	**fields** *optional*	Complex attributes to be included into the response. See clause 4.3.3 for details. The VNFM should support this parameter.	string
Query	**filter** *optional*	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 VnfLcmOpOcc and in data types referenced from it shall be supported by the VNFM in the filter expression.	string
Query	**nextpage_opa que_marker** *optional*	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	200 OK Status information for zero or more VNF lifecycle management operation occurrences was queried successfully. The response body shall contain in an array the status information about zero or more VNF lifecycle operation occurrences. If the VNFM supports alternative 2 (paging) according to clause 4.7.2.1 for this resource, inclusion of the Link HTTP header in this response shall follow the provisions in clause 4.7.2.3. **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. `Link` (string) : Reference to other resources. Used for paging in the present document, see clause 4.7.2.1.	Response 200

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request. **Headers** : `Content-Type` (string) : The MIME type of the body of the response. `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 200

Name	Description	Schema
_links *optional*	Links to resources related to this resource.	_links
cancelMode *optional*	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)

Name	Description	Schema
changedExtConnectivity *optional*	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 *optional*	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 *optional*	The definition of the general "ProblemDetails" data structure from IETF RFC 7807 [19] is reproduced inthis 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 *optional*	An identifier with the intention of being globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
isAutomaticInvocation *required*	Set to true if this VNF LCM operation occurrence has been triggered by an automated procedure inside the VNFM (i.e. ScaleVnf / ScaleVnfToLevel triggered by auto-scale, or HealVnf triggered by auto-heal). Set to false otherwise.	boolean
isCancelPending *required*	If the VNF LCM operation occurrence is in "STARTING", "PROCESSING" or "ROLLING_BACK" state and the operation is being cancelled, this attribute shall be set to true. Otherwise, it shall be set to false.	boolean

Name	Description	Schema
operation *required*	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)
operationParams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
operationState *required*	Value | Description ——|———— STARTING | The LCM operation is starting. PROCESSING | The LCM operation is currently in execution. COMPLETED | he 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.	enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK)
resourceChanges *optional*	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 *required*	Date-time of the start of the operation.	string (date-time)
stateEnteredTime *required*	Date-time when the current state was entered.	string (date-time)

Name	Description	Schema
vnfInstanceId *required*	An identifier with the intention of being globally unique.	string

_links

Name	Description	Schema
cancel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	cancel
fail *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	fail
grant *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	grant
retry *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	retry
rollback *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	rollback
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
vnfInstance *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	vnfInstance

cancel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

fail

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

grant

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

retry

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

rollback

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

vnfInstance

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changedExtConnectivity

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array

Name	Description	Schema
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

changedInfo

Name	Description	Schema
extensions *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimConnectionInfo *optional*	If present, this attribute signals modifications of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance".	< vimConnectionInfo > array
vimConnectionInfoDeleteIds *optional*	If present, this attribute signals the deletion of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance".	< string > array
vnfConfigurableProperties *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
vnfInstanceDescription *optional*	If present, this attribute signals modifications of the "vnfInstanceDescription" attribute in "VnfInstance".	string
vnfInstanceName *optional*	If present, this attribute signals modifications of the "vnfInstanceName" attribute in "VnfInstance".	string
vnfPkgId *optional*	An identifier with the intention of being globally unique.	string
vnfProductName *optional*	If present, this attribute signals modifications of the "vnfProductName" attribute in "VnfInstance". If present, this attribute (which depends on the value of the "vnfPkgId" attribute) was modified implicitly following a request to modify the "vnfPkgId" attribute, by copying the value of this attribute from the VNFD in the VNF Package identified by the "vnfPkgId" attribute.	string
vnfProvider *optional*	If present, this attribute signals modifications of the "vnfProvider" attribute in "VnfInstance". If present, this attribute (which depends on the value of the "vnfPkgId" attribute) was modified implicitly following a request to modify the "vnfPkgId" attribute, by copying the value of this attribute from the VNFD in the VNF Package identified by the "vnfPkgId" attribute.	string
vnfSoftwareVersion *optional*	A Version.	string
vnfdId *optional*	An identifier with the intention of being globally unique.	string
vnfdVersion *optional*	A Version.	string

vimConnectionInfo

Name	Description	Schema
accessInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)

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

affectedVirtualLinks

Name	Description	Schema
changeType *required*	Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY * LINK_PORT_ADDED * LINK_PORT_REMOVED For a temporary resource, an AffectedVirtualLink structure exists as long as the temporary resource exists.	enum (ADDED, REMOVED, MODIFIED, TEMPORARY, LINK_PORT_ADDED, LINK_PORT_REMOVED)
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
networkResource *required*	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
vnfVirtualLinkDescId *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

affectedVirtualStorages

Name	Description	Schema
changeType *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

affectedVnfcs

Name	Description	Schema
addedStorage ResourceIds *optional*	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
affectedVnfcC pIds *optional*	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 *required*	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)
computeReso urce *required*	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](#computeResource)
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
removedStora geResourceIds *optional*	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
vduId *required*	An identifier that is unique within a VNF descriptor.	string

computeResource

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

Response 400

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

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

Name	Description	Schema
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for 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 client can use this method to retrieve status information about a VNF lifecycle management operation occurrence by reading an individual "VNF LCM operation occurrence" resource.

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfLcmOpOcc Id** *required*	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	200 OK Information about an individual VNF instance was queried successfully. The response body shall contain status information about a VNF lifecycle management operation occurrence. **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.	Response 200

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict Another request is in progress that prohibits the fulfilment of the current request, or the current resource state is inconsistent with the request. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 200

Name	Description	Schema
_links *optional*	Links to resources related to this resource.	_links
cancelMode *optional*	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)

Name	Description	Schema
changedExtCo nnectivity *optional*	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.	< changedExtConnecti vity > array
changedInfo *optional*	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 *optional*	The definition of the general "ProblemDetails" data structure from IETF RFC 7807 [19] is reproduced inthis 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 *optional*	An identifier with the intention of being globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
isAutomaticIn vocation *required*	Set to true if this VNF LCM operation occurrence has been triggered by an automated procedure inside the VNFM (i.e. ScaleVnf / ScaleVnfToLevel triggered by auto-scale, or HealVnf triggered by auto-heal). Set to false otherwise.	boolean
isCancelPendi ng *required*	If the VNF LCM operation occurrence is in "STARTING", "PROCESSING" or "ROLLING_BACK" state and the operation is being cancelled, this attribute shall be set to true. Otherwise, it shall be set to false.	boolean

Name	Description	Schema
operation *required*	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)
operationPara ms *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
operationStat e *required*	Value | Description ——|——— STARTING | The LCM operation is starting. PROCESSING | The LCM operation is currently in execution. COMPLETED | he 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.	enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK)
resourceChan ges *optional*	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 *required*	Date-time of the start of the operation.	string (date-time)
stateEnteredT ime *required*	Date-time when the current state was entered.	string (date-time)

Name	Description	Schema
vnfInstanceId *required*	An identifier with the intention of being globally unique.	string

_links

Name	Description	Schema
cancel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	cancel
fail *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	fail
grant *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	grant
retry *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	retry
rollback *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	rollback
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
vnfInstance *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	vnfInstance

cancel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

fail

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

grant

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

retry

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

rollback

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

vnfInstance

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changedExtConnectivity

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array

Name	Description	Schema
id *required*	An identifier with the intention of being globally unique.	string
resourceHand le *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHand le *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

Name	Description	Schema
resourceId *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProvi derId *optional*	An identifier with the intention of being globally unique.	string
vimConnectio nId *optional*	An identifier with the intention of being globally unique.	string
vimLevelReso urceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

changedInfo

Name	Description	Schema
extensions *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimConnectio nInfo *optional*	If present, this attribute signals modifications of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance".	< vimConnectionInfo > array
vimConnectio nInfoDeleteId s *optional*	If present, this attribute signals the deletion of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance".	< string > array
vnfConfigura bleProperties *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
vnfInstanceDescription *optional*	If present, this attribute signals modifications of the "vnfInstanceDescription" attribute in "VnfInstance".	string
vnfInstanceName *optional*	If present, this attribute signals modifications of the "vnfInstanceName" attribute in "VnfInstance".	string
vnfPkgId *optional*	An identifier with the intention of being globally unique.	string
vnfProductName *optional*	If present, this attribute signals modifications of the "vnfProductName" attribute in "VnfInstance". If present, this attribute (which depends on the value of the "vnfPkgId" attribute) was modified implicitly following a request to modify the "vnfPkgId" attribute, by copying the value of this attribute from the VNFD in the VNF Package identified by the "vnfPkgId" attribute.	string
vnfProvider *optional*	If present, this attribute signals modifications of the "vnfProvider" attribute in "VnfInstance". If present, this attribute (which depends on the value of the "vnfPkgId" attribute) was modified implicitly following a request to modify the "vnfPkgId" attribute, by copying the value of this attribute from the VNFD in the VNF Package identified by the "vnfPkgId" attribute.	string
vnfSoftwareVersion *optional*	A Version.	string
vnfdId *optional*	An identifier with the intention of being globally unique.	string
vnfdVersion *optional*	A Version.	string

vimConnectionInfo

Name	Description	Schema
accessInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)

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

affectedVirtualLinks

Name	Description	Schema
changeType *required*	Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY * LINK_PORT_ADDED * LINK_PORT_REMOVED For a temporary resource, an AffectedVirtualLink structure exists as long as the temporary resource exists.	enum (ADDED, REMOVED, MODIFIED, TEMPORARY, LINK_PORT_ADDED, LINK_PORT_REMOVED)
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
networkResource *required*	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
vnfVirtualLinkDescId *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

affectedVirtualStorages

Name	Description	Schema
changeType *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

affectedVnfcs

Name	Description	Schema
addedStorage ResourceIds *optional*	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
affectedVnfcC pIds *optional*	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 *required*	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)
computeReso urce *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
removedStora geResourceIds *optional*	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
vduId *required*	An identifier that is unique within a VNF descriptor.	string

computeResource

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

Response 400

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

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

Name	Description	Schema
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for 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 *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change from occurrence to occurrence of the problem, except for purposes of localization (e.g., using proactive content negotiation; see [RFC7231], Section 3.4).	string
type *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for the 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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)
status *required*	The HTTP status code for this occurrence of the problem. The HTTP status code ([RFC7231], Section 6) generated by the origin server for this occurrence of the problem.	integer
title *optional*	A short, human-readable summary of the problem type. It should not change from occurrence to occurrence of the problem, except for purposes of localization. If type is given and other than "about:blank", this attribute shall also be provided. A short, human-readable summary of the problem type. It SHOULD NOT change 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 *optional*	A URI reference according to IETF RFC 3986 [5] that identifies the problem type. It is encouraged that the URI provides human-readable documentation for 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 "VNF LCM operation occurrence" is either in "PROCESSING" or "ROLLING_BACK" state.

Parameters

Type	Name	Description	Schema
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfLcmOpOcc Id** *required*	Identifier of a VNF lifecycle management operation occurrence to be 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	202 ACCEPTED The request was accepted for processing, but processing has not been completed. The response shall have an empty payload body. **Headers** : `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. `Version` (string) : The used API version.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	Conflict The operation cannot be executed currently, due to a conflict with the state of the VNF LCM operation occurrence resource. Typically, this is due to the fact that the operation occurrence is not in STARTING, PROCESSING or ROLLING_BACK state. The response body shall contain a ProblemDetails structure, in which the "detail" attribute shall convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 400

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

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

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

Parameters

Type	Name	Description	Schema
Header	**Accept** *required*	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfLcmOpOcc Id** *required*	Identifier of a VNF lifecycle management operation occurrence to be 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	200 OK The state of the VNF lifecycle management operation occurrence was changed successfully. The response shall include a representation of the VNF lifecycle operation occurrence resource. **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.	Response 200

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is not in FAILED_TEMP state, or another error handling action is starting, such as rollback or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 200

Name	Description	Schema
_links *optional*	Links to resources related to this resource.	_links
cancelMode *optional*	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)

Name	Description	Schema
changedExtConnectivity *optional*	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 *optional*	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 *optional*	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 *optional*	An identifier with the intention of being globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
isAutomaticInvocation *required*	Set to true if this VNF LCM operation occurrence has been triggered by an automated procedure inside the VNFM (i.e. ScaleVnf / ScaleVnfToLevel triggered by auto-scale, or HealVnf triggered by auto-heal). Set to false otherwise.	boolean
isCancelPending *required*	If the VNF LCM operation occurrence is in "STARTING", "PROCESSING" or "ROLLING_BACK" state and the operation is being cancelled, this attribute shall be set to true. Otherwise, it shall be set to false.	boolean

Name	Description	Schema
operation *required*	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)
operationParams *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
operationState *required*	Value | Description ——|——— STARTING | The LCM operation is starting. PROCESSING | The LCM operation is currently in execution. COMPLETED | he 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.	enum (STARTING, PROCESSING, COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK, ROLLED_BACK)
resourceChanges *optional*	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 *required*	Date-time of the start of the operation.	string (date-time)
stateEnteredTime *required*	Date-time when the current state was entered.	string (date-time)

Name	Description	Schema
vnfInstanceId *required*	An identifier with the intention of being globally unique.	string

_links

Name	Description	Schema
cancel *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	cancel
fail *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	fail
grant *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	grant
retry *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	retry
rollback *optional*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	rollback
self *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	self
vnfInstance *required*	This type represents a link to a resource using an absolute URI. It shall comply with the provisions defined in table 4.4.1.3-1.	vnfInstance

cancel

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

fail

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

grant

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

retry

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

rollback

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

self

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

vnfInstance

Name	Description	Schema
href *required*	String formatted according to IETF RFC 3986.	string

changedExtConnectivity

Name	Description	Schema
extLinkPorts *optional*	Link ports of this VL.	< extLinkPorts > array

Name	Description	Schema
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *optional*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
id *required*	An identifier with the intention of being globally unique.	string
resourceHandle *required*	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 *required*	An identifier maintained by the VIM or other resource provider. It is expected to be unique within the VIM instance.	string
resourceProviderId *optional*	An identifier with the intention of being globally unique.	string
vimConnectionId *optional*	An identifier with the intention of being globally unique.	string
vimLevelResourceType *optional*	Type of the resource in the scope of the VIM or the resource provider.	string

resourceHandle

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

changedInfo

Name	Description	Schema
extensions *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimConnectionInfo *optional*	If present, this attribute signals modifications of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance".	< vimConnectionInfo > array
vimConnectionInfoDeleteIds *optional*	If present, this attribute signals the deletion of certain entries in the "vimConnectionInfo" attribute array in "VnfInstance".	< string > array
vnfConfigurableProperties *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object

Name	Description	Schema
vnfInstanceDescription *optional*	If present, this attribute signals modifications of the "vnfInstanceDescription" attribute in "VnfInstance".	string
vnfInstanceName *optional*	If present, this attribute signals modifications of the "vnfInstanceName" attribute in "VnfInstance".	string
vnfPkgId *optional*	An identifier with the intention of being globally unique.	string
vnfProductName *optional*	If present, this attribute signals modifications of the "vnfProductName" attribute in "VnfInstance". If present, this attribute (which depends on the value of the "vnfPkgId" attribute) was modified implicitly following a request to modify the "vnfPkgId" attribute, by copying the value of this attribute from the VNFD in the VNF Package identified by the "vnfPkgId" attribute.	string
vnfProvider *optional*	If present, this attribute signals modifications of the "vnfProvider" attribute in "VnfInstance". If present, this attribute (which depends on the value of the "vnfPkgId" attribute) was modified implicitly following a request to modify the "vnfPkgId" attribute, by copying the value of this attribute from the VNFD in the VNF Package identified by the "vnfPkgId" attribute.	string
vnfSoftwareVersion *optional*	A Version.	string
vnfdId *optional*	An identifier with the intention of being globally unique.	string
vnfdVersion *optional*	A Version.	string

vimConnectionInfo

Name	Description	Schema
accessInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
extra *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
id *required*	An identifier with the intention of being globally unique.	string
interfaceInfo *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
vimId *optional*	An identifier with the intention of being globally unique.	string
vimType *required*	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 *required*	A human-readable explanation specific to this occurrence of the problem.	string
instance *optional*	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	string (URI)

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

affectedVirtualLinks

Name	Description	Schema
changeType *required*	Signals the type of change. Permitted values: * ADDED * REMOVED * MODIFIED * TEMPORARY * LINK_PORT_ADDED * LINK_PORT_REMOVED For a temporary resource, an AffectedVirtualLink structure exists as long as the temporary resource exists.	enum (ADDED, REMOVED, MODIFIED, TEMPORARY, LINK_PORT_ADDED, LINK_PORT_REMOVED)
id *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
networkResource *required*	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
vnfVirtualLinkDescId *required*	An identifier that is unique within a VNF descriptor.	string

networkResource

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

affectedVirtualStorages

Name	Description	Schema
changeType *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
storageResource *required*	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 *required*	An identifier that is unique within a VNF descriptor.	string

storageResource

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

affectedVnfcs

Name	Description	Schema
addedStorage ResourceIds *optional*	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
affectedVnfcC pIds *optional*	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 *required*	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)
computeReso urce *required*	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 *required*	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
metadata *optional*	This type represents a list of key-value pairs. The order of the pairs in the list is not significant. In JSON, a set of key-value pairs is represented as an object. It shall comply with the provisions defined in clause 4 of IETF RFC 7159.	object
removedStora geResourceIds *optional*	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
vduId *required*	An identifier that is unique within a VNF descriptor.	string

computeResource

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

Response 400

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

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

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

Parameters

Type	Name	Description	Schema
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfLcmOpOcc Id** *required*	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	202 ACCEPTED The request was accepted for processing, but processing has not been completed. The response shall have an empty payload body. **Headers** : `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. `Version` (string) : The used API version.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is not in FAILED_TEMP state, or another error handling action is starting, such as rollback or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	Response 503

Response 400

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

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

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

Parameters

Type	Name	Description	Schema
Header	**Authorization** *optional*	The authorization token for the request. Reference: IETF RFC 7235	string
Header	**Version** *required*	Version of the API requested to use when responding to this request.	string
Path	**vnfLcmOpOcc Id** *required*	Identifier of a VNF lifecycle management operation occurrence to be 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	202 ACCEPTED The request was accepted for processing, but processing has not been completed. The response shall have an empty payload body. **Headers** : `WWW-Authenticate` (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token. `Version` (string) : The used API version.	No Content

HTTP Code	Description	Schema
400	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. **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.	Response 400

HTTP Code	Description	Schema
401	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. **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.	Response 401
403	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. **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.	Response 403

HTTP Code	Description	Schema
404	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. **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.	Response 404
405	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. **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.	Response 405

HTTP Code	Description	Schema
406	406 NOT ACCEPTABLE If the "Accept" 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. **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.	Response 406
409	The operation cannot be executed currently, due to a conflict with the state of the VNF instance resource. Typically, this is due to the fact that the VNF instance resource is not in FAILED_TEMP state, or another error handling action is starting, such as rollback or fail. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error. **Headers** : Content-Type (string) : The MIME type of the body of the response. WWW-Authenticate (string) : Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 409
500	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. **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.	Response 500

HTTP Code	Description	Schema
503	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. **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.	[Response 503](#)

Response 400

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

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

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