# SOL005 - NS Lifecycle Management Notification interface

# **Overview**

SOL005 - NS Lifecycle Management Notification interface

**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 002 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: 1.0.0

#### 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: /callback/v1 Schemes: HTTP, HTTPS

#### **Consumes**

• application/json

### **Produces**

• application/json

### **External Docs**

Description: ETSI GS NFV-SOL 005 V2.4.1

URL: http://www.etsi.org/deliver/etsi\_gs/NFV-SOL/001\_099/005/02.04.01\_60/gs\_NFV-

SOL005v020401p.pdf

# **Paths**

# Notify about NS lifecycle change

POST /URI\_is\_provided\_by\_the\_client\_when\_creating\_the\_subscription-NsIdentifierCreationNotification

#### **Description**

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

#### **Parameters**

Туре	Name	Description	Schema
Header	<b>Accept</b> required	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	<b>Authorization</b> 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	<b>Version</b> required	Version of the API requested to use when responding to this request.	string
Body	NsIdentifierC reationNotific ation required	A notification about the creation of a NS identifier and the related NS instance resource.	

#### **NsIdentifierCreationNotification**

Name	Schema
NsIdentifierCreationNotification optional	NsIdentifierCreationNotification

#### NsIdentifierCreationNotification

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

### \_links

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

### lcOpOcc

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

#### nsInstance

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

### subscription

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

HTTP Code	Description	Schema
204	204 No Content The notification was delivered successfully.  Headers:  WWW-Authenticate (string): Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.  Version (string): Version of the API used in the response.	No Content
400	Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.  Headers: Content-Type (string): The MIME type of the body of the response.  WWW-Authenticate (string): Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 400

HTTP Code	Description	Schema
401	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.	Response 401
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.	Response 403
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.  Headers:  Content-Type (string): The MIME type of the body of the response.	Response 404
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 in that case.  Headers:  Content-Type (string): The MIME type of the body of the response.	Response 405

HTTP Code	Description	Schema
406	Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.  Headers: Content-Type (string): The MIME type of the body of the response.	
409	409 CONFLICT Headers: Content-Type (string): The MIME type of the body of the response. WWW-Authenticate (string): 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 409
416	Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.  Headers: Content-Type (string): The MIME type of the body of the response.	Response 416
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 withthis 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.	
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 [13] 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.	

Name	Description	Schema
<b>detail</b> 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.	
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
<b>title</b> 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
<b>type</b> 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".	

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

Name	Description	Schema
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instance optional	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	
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

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<b>title</b> 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
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<b>detail</b> 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.	
<b>status</b> 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
<b>title</b> 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

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<b>type</b> 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)

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

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

Name	Description	Schema
<b>instance</b> optional	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	
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
<b>title</b> 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
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Name	Description	Schema
<b>detail</b> 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.	
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
<b>title</b> 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).	
<b>type</b> 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".	

# Notify about NS lifecycle change

POST /URI\_is\_provided\_by\_the\_client\_when\_creating\_the\_subscription-NsIdentifierDeletionNotification

### **Description**

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

#### **Parameters**

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

Type	Name	Description	Schema
Body	NsIdentifierD eletionNotific ation required	A notification about the deletion of a NS identifier and the related NS instance resource.	

#### NsIdentifierDeletionNotification

Name	Schema
NsIdentifierDeletionNotification optional	NsIdentifierDeletionNotification

#### NsIdentifierDeletionNotification

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

#### \_links

Name	Description	Schema
lcOpOcc optional	This type represents a link to a resource.	lcOpOcc
<b>nsInstance</b> required	This type represents a link to a resource.	nsInstance

Name	Description	Schema
subscription optional	This type represents a link to a resource.	subscription

### lcOpOcc

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

#### nsInstance

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

### subscription

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

HTTP Code	Description	Schema
204	204 No Content The notification was delivered successfully. <b>Headers</b> :  WWW-Authenticate (string): 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	Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.  Headers: Content-Type (string): The MIME type of the body of the response.  WWW-Authenticate (string): Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 400
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.	Response 401
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.	Response 403
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.  Headers:  Content-Type (string): The MIME type of the body of the response.	

HTTP Code	Description	Schema
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 in that case.  Headers: Content-Type (string): The MIME type of the body of the response.	Response 405
406	Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.  Headers: Content-Type (string): The MIME type of the body of the response.	Response 406
409	409 CONFLICT Headers: Content-Type (string): The MIME type of the body of the response. WWW-Authenticate (string): 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 409
416	Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.  Headers: Content-Type (string): The MIME type of the body of the response.	Response 416
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 withthis 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.	Response 500

HTTP Code	Description	Schema
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 [13] 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.	

Name	Description	Schema
<b>detail</b> required	A human-readable explanation specific to this occurrence of the problem.	string
<b>instance</b> optional	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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".	

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

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

Name	Description	Schema
<b>instance</b> optional	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	
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
<b>title</b> 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
<b>type</b> 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".	

Name	Description	Schema
<b>detail</b> 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.	
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
<b>title</b> 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
<b>type</b> 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)

Name	Description	Schema
<b>detail</b> 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.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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".	

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

Name	Description	Schema
<b>detail</b> 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.	
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
<b>title</b> 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).	
<b>type</b> 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)

# Test the notification endpoint.

GET /URI\_is\_provided\_by\_the\_client\_when\_creating\_the\_subscription-NsIdentifierDeletionNotification

#### **Description**

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

#### **Parameters**

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

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

HTTP Code	Description	Schema
204	204 No Content The notification endpoint was tested successfully. The response body shall be empty.  Headers:  WWW-Authenticate (string): Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.  Version (string): Version of the API used in the response.	No Content
400	Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.  Headers: Content-Type (string): The MIME type of the body of the response.  WWW-Authenticate (string): Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 400
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.	

HTTP Code	Description	Schema
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.	Response 403
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.  Headers:  Content-Type (string): The MIME type of the body of the response.	Response 404
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 in that case.  Headers:  Content-Type (string): The MIME type of the body of the response.	Response 405
406	Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.  Headers:  Content-Type (string): The MIME type of the body of the response.	Response 406
409	409 CONFLICT  Headers:  Content-Type (string): The MIME type of the body of the response.  WWW-Authenticate (string): 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 409

HTTP Code	Description	Schema
416	Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.  Headers: Content-Type (string): The MIME type of the body of the response.	Response 416
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 withthis 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.	
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 [13] 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.	

Name	Description	Schema
<b>detail</b> 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.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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)

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

Name	Description	Schema
<b>type</b> 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)

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

Name	Description	Schema
<b>detail</b> 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.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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".	

Name	Description	Schema
<b>detail</b> 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.	
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
<b>title</b> 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
<b>type</b> 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)

Name	Description	Schema
<b>detail</b> 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.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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)

Name	Description	Schema
<b>detail</b> 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.	
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
<b>title</b> 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
<b>type</b> 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".	

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

Name	Description	Schema
<b>instance</b> optional	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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".	

Name	Description	Schema
<b>detail</b> 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.	
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
<b>title</b> 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
<b>type</b> 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)

Name	Description	Schema
<b>detail</b> 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.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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)

# Notify about NS lifecycle change

POST /URI\_is\_provided\_by\_the\_client\_when\_creating\_the\_subscription-NsLcmOperationOccurrenceNotification

### **Description**

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

#### **Parameters**

Туре	Name	Description	Schema
Header	<b>Accept</b> required	Content-Types that are acceptable for the response. Reference: IETF RFC 7231	string
Header	<b>Authorization</b> 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	<b>Version</b> required	Version of the API requested to use when responding to this request.	string
Body	NsLcmOperati onOccurrence Notification required	A notification about lifecycle changes triggered by a NS LCM. operation occurrence.	NsLcmOperationOcc urrenceNotification

#### NsLcmOperationOccurrenceNotification

Name	Schema
NsLcmOperationOccurrenceNotificati	
on	NsLcmOperationOccurrenceNotification
optional	

# NsLcmOperationOccurrenceNotification

Name	Description	Schema
_links optional	This type represents the links to resources that a notification can contain.	_links
affectedNs optional	Information about the SAP instances that were affected during the lifecycle operation. See note.	< affectedNs > array
affectedPnf optional	This type provides information about added, deleted and modified PNFs. It shall comply with the provisions in Table 6.5.3.3-1.	affectedPnf
affectedSap optional	The enumeration NsLcmOpType represents those lifecycle operations that trigger a NS lifecycle management operation occurrence notification. Value   Description —   INSTANTIATE   Represents the "Instantiate NS" LCM operation. SCALE   Represents the "Scale NS" LCM operation. UPDATE   Represents the "Update NS" LCM operation. TERMINATE   Represents the "Terminate NS" LCM operation. HEAL   Represents the "Heal NS" LCM operation.	enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL)
affectedVl optional	Information about the VL instances that were affected during the lifecycle operation.	< affectedVl > array
affectedVnf optional	This type provides information about added, deleted and modified VNFs. It shall comply with the provisions in Table 6.5.3.2-1.	affectedVnf
affectedVnffg optional	Information about the VNFFG instances that were affected during the lifecycle operation.	< affectedVnffg > array

Name	Description	Schema
<b>error</b> 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
<b>id</b> required	An identifier with the intention of being globally unique.	string
isAutomaticIn vocation optional	Set to true if this NS LCM operation occurrence has been automatically triggered by the NFVO. This occurs in case of auto-scaling, auto-healing and when a nested NS is modified as a result of an operation on its composite NS. Set to false otherwise.	boolean
notificationSt atus optional	Indicates whether this notification reports about the start of a NS lifecycle operation or the result of a NS lifecycle operation. Permitted values: - START: Informs about the start of the NS LCM operation occurrence RESULT: Informs about the final or intermediate result of the NS LCM operation occurrence.	
notificationTy pe optional	Discriminator for the different notification types. Shall be set to "NsLcmOperationOccurrenceNotification" for this notification type.	string
<b>nsInstanceId</b> required	An identifier with the intention of being globally unique.	string
nsLcmOpOccI d required	An identifier with the intention of being globally unique.	string

Name	Description	Schema
operation optional	The enumeration NsLcmOpType represents those lifecycle operations that trigger a NS lifecycle management operation occurrence notification. Value   Description —   INSTANTIATE   Represents the "Instantiate NS" LCM operation. SCALE   Represents the "Scale NS" LCM operation. UPDATE   Represents the "Update NS" LCM operation. TERMINATE   Represents the "Terminate NS" LCM operation. HEAL   Represents the "Heal NS" LCM operation.	enum (INSTANTIATE, SCALE, UPDATE, TERMINATE, HEAL)
operationStat e optional	The enumeration NsLcmOperationStateType shall comply with the provisions defined in Table 6.5.4.4-1. Value   Description —— ——————————————————————————————————	COMPLETED, FAILED_TEMP, FAILED, ROLLING_BACK,
subscriptionI d required	An identifier with the intention of being globally unique.	string
timestamp optional	Date-time stamp. Representation: String formatted according to IETF RFC 3339.	string (date-time)

### \_links

Name	Description	Schema
lcOpOcc optional	This type represents a link to a resource.	lcOpOcc
<b>nsInstance</b> required	This type represents a link to a resource.	nsInstance

Name	Description	Schema
subscription optional	This type represents a link to a resource.	subscription

# lcOpOcc

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

#### nsInstance

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

# subscription

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

## affectedNs

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

### affectedPnf

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

#### affectedVl

Name	Description	Schema
<b>changeType</b> required		MODIFIED, TEMPORARY,
<b>id</b> required	An identifier that is unique for the respective type within a VNF instance, but may not be globally unique.	string
<b>metadata</b> 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.	

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.	
virtualLinkDe scId required	Identifier of the VNF Virtual Link Descriptor (VLD) in the VNFD.	string

#### network Resource

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 required	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

#### affectedVnf

Name	Description	Schema
changeResult optional	Signals the result of change identified by the "changeType" attribute. Permitted values: - COMPLETED - ROLLED_BACK - FAILED	

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

## changed In fo

Name	Description	Schema
changedExtCo nnectivity optional		changedExtConnecti vity

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

## changed Ext Connectivity

Name	Description	Schema
<b>extLinkPorts</b> optional	Link ports of this VL.	< extLinkPorts > array
<b>id</b> 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.	

#### extLinkPorts

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

Name	Description	Schema
resourceProvi derId optional	An identifier with the intention of being globally unique.	string
vimConnectio nId required	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 required	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

## changed VnfInfo

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.	- h-i 4

Name	Description	Schema
<b>Metadata</b> 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
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	New value of the "vnfInstanceDescription" attribute in "VnfInstance", or "null" to remove the attribute.	string
vnfInstanceId required	An identifier with the intention of being globally unique.	string
vnfInstanceN ame 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

# affectedVnffg

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

#### error

Name	Description	Schema
<b>detail</b> 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.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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)

HTTP Code	Description	Schema
204	204 No Content The notification was delivered successfully. <b>Headers:</b> WWW-Authenticate (string): 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	Bad Request Error: Invalid attribute-based filtering parameters. The response body shall contain a ProblemDetails structure, in which the "detail" attribute should convey more information about the error.  Headers: Content-Type (string): The MIME type of the body of the response.  WWW-Authenticate (string): Challenge if the corresponding HTTP request has not provided authorization, or error details if the corresponding HTTP request has provided an invalid authorization token.	Response 400
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.	Response 401
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.	Response 403
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.  Headers:  Content-Type (string): The MIME type of the body of the response.	Response 404

HTTP Code	Description	Schema
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 in that case.  Headers: Content-Type (string): The MIME type of the body of the response.	Response 405
406	Not Acceptable If the Accept HTTP header does not contain at least one name of a content type that is acceptable to the API producer, the API producer shall respond with this response code. The ProblemDetails structure may be omitted in that case.  Headers:  Content-Type (string): The MIME type of the body of the response.	Response 406
409	409 CONFLICT Headers: Content-Type (string): The MIME type of the body of the response. WWW-Authenticate (string): 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 409
416	Requested Range Not Satisfiable This code is returned if the requested byte range in the Range HTTP header is not present in the requested resource.  Headers: Content-Type (string): The MIME type of the body of the response.	Response 416
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 withthis 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.	Response 500

HTTP Code	Description	Schema
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 [13] 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.	Response 503

Name	Description	Schema
<b>detail</b> required	A human-readable explanation specific to this occurrence of the problem.	string
<b>instance</b> optional	A URI reference that identifies the specific occurrence of the problem. It may yield further information if dereferenced.	
<b>status</b> 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
<b>title</b> 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
<b>type</b> 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".	

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