**3GPP TSG CT WG3 Meeting #132eC3-240xxx**

**Electronic, 22nd – 24th January, 2024 was C3-240077**

**Source: Huawei**

**Title: Pseudo-CR on defining the NSCE\_PerfMonitoring API**

**Spec: 3GPP TS 29.435 V 0.1.1**

**Agenda item: 18.49 (NSCALE)**

**Document for: Agreement**

**1. Introduction**

As specified in clause 9.7 of TS 23.435, the NSCE\_PerfMonitoring Service API was defined in order to support the functionality of Network slice related performance and analytics monitoring.

The stage 3 definition of this API in this specification needs hence to be started.

**2. Reason for Change**

Start the definition of the service description clauses of the new NSCE\_PerfMonitoring Service API in the new TS 23.435.

**3. Conclusions**

N/A

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.435 V 0.1.1.

\* \* \* \* Start of changes \* \* \* \*

# 4 Overview

The Network Slice Capability Exposure (NSCE) Server forms part of the SEAL Enabler Layer defined in 3GPP TS 23.434 [23434] and aims to ensure the efficient use and deployment of network slice capability exposure capabilities to vertical applications. The NSCE server services provides additional functionality (e.g. network slice related performance and analytics monitoring) and exposes slice capabilities based on 5GS management system services (e.g MnS services) and 5GS network services (e.g. NEF APIs, NWDAF APIs, NSACF APIs).The NCSE Server supports for this purpose, among other functionalities defined in 3GPP TS 23.435 [14], the following functionalities:

- NSCE application layer support functions to VAL Servers over the NSCE-S reference point, i.e.:

- network slice related performance and analytics monitoring management;

- NSCE application layer support functions to other NSCE Servers over the NSCE-E reference point, i.e.:

Editor's Note: The exact list can be introduced for each API when introduced.

Figure 4-1 shows the reference model of the NSCE Enabler Layer, with a focus on the NSCE Server:



Figure 4-1: NSCE Enabler Layer functional model

\* \* \* \* Next changes \* \* \* \*

## 5.7 NSCE\_PerfMonitoring

### 5.7.1 Service Description

The NSCE\_PerfMonitoring service exposed by the NSCE Server enables a service consumer to:

- create/update/delete a network slice related performance and analytics monitoring job;

- create/update/delete a network slice related performance and analytics monitoring subscription;

- receive network slice related performance and analytics monitoring event(s) related notifications; and

- request a multiple slices related performance and analytics consolidated reporting;

#### 5.7.2.1 Introduction

The service operations defined for the NSCE\_PerfMonitoring service are shown in table 5.7.2.1-1.

Table 5.7.2.1-1: NSCE\_PerfMonitoring Service Operations

|  |  |  |
| --- | --- | --- |
| Service Operation Name | Description | Initiated by |
| NSCE\_PerfMonitoring\_Manage | This service operation enables a service consumer to request the creation/update/deletion of a network slice related performance and analytics monitoring job at the NSCE Server. | e.g., VAL Server |
| NSCE\_PerfMonitoring\_Subscribe | This service operation enables a service consumer to request the creation/update/deletion of a network slice related performance and analytics monitoring subscription at the NSCE Server. | e.g., VAL Server |
| NSCE\_PerfMonitoring\_Notify | This service operation enables a service consumer to receive network slice related performance and analytics monitoring event(s) related notifications from the NSCE Server. | NSCE Server |
| NSCE\_PerfMonitoring\_Request | This service operation enables a service consumer to request a multiple slices related performance and analytics consolidated reporting to the NSCE Server. | e.g., VAL Server |

#### 5.7.2.2 NSCE\_PerfMonitoring\_Manage

##### 5.7.2.2.1 General

This service operation is used by a service consumer to request the creation/update/deletion of a network slice related performance and analytics monitoring job at the NSCE Server.

The following procedures are supported by the "NSCE\_PerfMonitoring\_Manage" service operation:

- Monitoring Job Creation.

- Monitoring Job Update.

- Monitoring Job Deletion.

##### 5.7.2.2.2 Monitoring Job Creation

Figure 5.7.2.2.2-1 depicts a scenario where a a service consumer sends a request to the NSCE Server to request the creation of a Monitoring Job (see also clause 9.7 of 3GPP°TS°23.435°[14]).

 Figure 5.7.2.2.2-1: Procedure for Monitoring Job Creation

1. In order to create a new network slice related performance and analytics monitoring job, the service consumer shall send an HTTP POST request to the NSCE Server targeting the URI of the "Monitoring Jobs" collection resource, with the request body including the MonitoringJob data structure.

2a. Upon success, the NSCE Server shall respond with an HTTP "201 Created" status code, with the response body containing a representation of the created "Individual Monitoring Job" resource within the MonitoringJob data structure, and an HTTP "Location" header field containing the URI of the created resource.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.6.7.

##### 5.7.2.2.3 Monitoring Job Update

Figure 5.7.2.2.3-1 depicts a scenario where a service consumer sends a request to the NSCE Server to request the update of an existing Monitoring Job (see also clause 9.7 of 3GPP°TS°23.435°[14]).



Figure 5.7.2.2.3-1: Procedure for Monitoring Job Update

1. In order to request the update of an existing network slice related performance and analytics monitoring job, the service consumer shall send an HTTP PUT/PATCH request to the NSCE Server, targeting the URI of the corresponding "Individual Monitoring Job" resource, with the request body including either:

- the updated representation of the resource within the MonitoringJob data structure, in case the HTTP PUT method is used; or

- the requested modifications to the resource within the MonitoringJobPatch data structure, in case the HTTP PATCH method is used.

NOTE: An alternative service consumer (i.e. other than the one that requested the creation of the targeted resource) can initiate this request.

2a. Upon success, the NSCE Server shall update the targeted "Individual Monitoring Job" resource accordingly and respond with either:

- an HTTP "200 OK" status code with the response body containing a representation of the updated "Individual Monitoring Job" resource within the MonitoringJob data structure; or

- an HTTP "204 No Content" status code.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP PUT/PATCH response body, as specified in clause 6.6.7.

##### 5.7.2.2.4 Monitoring Job Deletion

Figure 5.7.2.2.4-1 depicts a scenario where a service consumer sends a request to the NSCE Server to request the deletion of an existing Monitoring Job (see also clause 9.7 of 3GPP°TS°23.435°[14]).



Figure 5.7.2.2.4-1: Procedure for Monitoring Job Deletion

1. In order to request the deletion of an existing network slice related performance and analytics monitoring job, the service consumer shall send an HTTP DELETE request to the NSCE Server targeting the corresponding "Individual Monitoring Job" resource.

NOTE: An alternative service consumer (i.e. other than the one that requested the creation/update of the targeted resource) can initiate this request.

2a. Upon success, the NSCE Server shall respond with an HTTP "204 No Content" status code.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP DELETE response body, as specified in clause 6.6.7.

#### 5.7.2.3 NSCE\_PerfMonitoring\_Subscribe

##### 5.7.2.3.1 General

This service operation is used by a service consumer to request the creation/update/deletion of a network slice related performance and analytics monitoring subscription at the NSCE Server.

The following procedures are supported by the "NSCE\_PerfMonitoring\_Subscribe" service operation:

- Monitoring Subscription Creation.

- Monitoring Subscription Update.

- Monitoring Subscription Deletion.

##### 5.7.2.3.2 Monitoring Subscription Creation

Figure 5.7.2.3.2-1 depicts a scenario where a a service consumer sends a request to the NSCE Server to request the creation of a Monitoring Subscription (see also clause 9.7 of 3GPP°TS°23.435°[14]).

 Figure 5.7.2.3.2-1: Procedure for Monitoring Subscription Creation

1. In order to create a new network slice related performance and analytics monitoring subscription, the service consumer shall send an HTTP POST request to the NSCE Server targeting the URI of the "Monitoring Subscriptions" collection resource, with the request body including the MonitoringSubsc data structure.

2a. Upon success, the NSCE Server shall respond with an HTTP "201 Created" status code, with the response body containing a representation of the created "Individual Monitoring Subscription" resource within the MonitoringSubsc data structure, and an HTTP "Location" header field containing the URI of the created resource.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.6.7.

##### 5.7.2.3.3 Monitoring Subscription Update

Figure 5.7.2.3.3-1 depicts a scenario where a service consumer sends a request to the NSCE Server to request the update of an existing Monitoring Subscription (see also clause 9.7 of 3GPP°TS°23.435°[14]).



Figure 5.7.2.3.3-1: Procedure for Monitoring Subscription Update

1. In order to request the update of an existing network slice related performance and analytics monitoring subscription, the service consumer shall send an HTTP PUT/PATCH request to the NSCE Server, targeting the URI of the corresponding "Individual Monitoring Subscription" resource, with the request body including either:

- the updated representation of the resource within the MonitoringSubsc data structure, in case the HTTP PUT method is used; or

- the requested modifications to the resource within the MonitoringSubscPatch data structure, in case the HTTP PATCH method is used.

NOTE: An alternative service consumer (i.e. other than the one that requested the creation of the targeted resource) can initiate this request.

2a. Upon success, the NSCE Server shall update the targeted "Individual Monitoring Subscription" resource accordingly and respond with either:

- an HTTP "200 OK" status code with the response body containing a representation of the updated "Individual Monitoring Subscription" resource within the MonitoringSubsc data structure; or

- an HTTP "204 No Content" status code.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP PUT/PATCH response body, as specified in clause 6.6.7.

##### 5.7.2.3.4 Monitoring Subscription Deletion

Figure 5.7.2.3.4-1 depicts a scenario where a service consumer sends a request to the NSCE Server to request the deletion of an existing Monitoring Subscription (see also clause 9.7 of 3GPP°TS°23.435°[14]).



Figure 5.7.2.3.4-1: Procedure for Monitoring Subscription Deletion

1. In order to request the deletion of an existing network slice related performance and analytics monitoring subscription, the service consumer shall send an HTTP DELETE request to the NSCE Server targeting the corresponding "Individual Monitoring Subscription" resource.

NOTE: An alternative service consumer (i.e. other than the one that requested the creation/update of the targeted resource) can initiate this request.

2a. Upon success, the NSCE Server shall respond with an HTTP "204 No Content" status code.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP DELETE response body, as specified in clause 6.6.7.

#### 5.7.2.4 NSCE\_PerfMonitoring\_Notify

##### 5.7.2.4.1 General

This service operation is used by a NSCE Server to notify a previously subscribed service consumer on:

- network slice related performance and analytics monitoring event(s).

The following procedures are supported by the "NSCE\_PerfMonitoring\_Notify" service operation:

- Monitoring Notification.

##### 5.7.2.4.2 Monitoring Notification

Figure 5.7.2.4.2-1 depicts a scenario where the NSCE Server sends a request to notify a previously subscribed service consumer on network slice related performance and analytics monitoring event(s) (see also clause 9.7 of 3GPP°TS°23.435°[14]).



Figure 5.7.2.4.2-1: Monitoring Notification

1. In order to notify a previously subscribed service consumer on network slice related performance and analytics monitoring event(s), the NSCE Server shall send an HTTP POST request to the service consumer with the request URI set to "{notifUri}", where the "notifUri" variable is set to the value received from the service consumer during the creation/update of the corresponding Monitoring Subscription using the procedures defined in clause 5.7.2.3, and the request body including the MonitoringNotif data structure.

2a. Upon success, the service consumer shall respond to the NSCE Server with an HTTP "204 No Content" status code to acknowledge the successful reception and processing of the notification.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.6.7.

#### 5.7.2.5 NSCE\_PerfMonitoring\_Request

##### 5.7.2.5.1 General

This service operation is used by a service consumer to request a multiple slices related performance and analytics consolidated reporting to the NSCE Server.

The following procedures are supported by the "NSCE\_PerfMonitoring\_Request" service operation:

- Multiple Slices related Performance and Analytics Consolidated Reporting Request.

##### 5.7.2.5.2 Multiple Slices related Performance and Analytics Consolidated Reporting Request

Figure 5.7.2.5.2-1 depicts a scenario where a service consumer sends a request to the NSCE Server to request a multiple slices related performance and analytics consolidated reporting to the NSCE Server (see also clause 9.7 of 3GPP°TS°23.435°[14]).



Figure 5.7.2.5.2-1: Procedure for Multiple Slices related Performance and Analytics Consolidated Reporting Request

1. In order to request a multiple slices related performance and analytics consolidated reporting, the service consumer shall send an HTTP POST request to the NSCE Server targeting the URI of the corresponding custom operation (i.e., "Request"), with the request body including the MonitoringReq data structure.

2a. Upon success, the NSCE Server shall respond with an HTTP "200 OK" status code with the response body containing the requested multiple slices related performance and analytics consolidated report within the MonitoringResp data structure.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.6.7.

\* \* \* \* Next changes \* \* \* \*

## 6.6 NSCE\_PerfMonitoring API

### 6.6.1 Introduction

The NSCE\_PerfMonitoring service shall use the NSCE\_PerfMonitoring API.

The API URI of the NSCE\_PerfMonitoring Service API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 6.5 of 3GPP TS 29.549 [13], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificSuffixes>**

with the following components:

- The {apiRoot} shall be set as described in clause 6.5 of 3GPP TS 29.549 [13].

- The <apiName>shall be "nsce-pam".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 6.5 of 3GPP TS 29.549 [13].

NOTE: When 3GPP TS 29.122 [2] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 6.6, the NSCE Server takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

### 6.6.2 Usage of HTTP

The provisions of clause 6.3 of 3GPP TS 29.549 [13] shall apply for the NSCE\_PerfMonitoring API.

### 6.6.3 Resources

#### 6.6.3.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 6.6.3.1-1 depicts the resource URIs structure for the NSCE\_PerfMonitoring API.



Figure 6.6.3.1-1: Resource URIs structure of the NSCE\_PerfMonitoring API

Table 6.6.3.1-1 provides an overview of the resources and applicable HTTP methods for the NSCE\_PerfMonitoring API.

Table 6.6.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| Monitoring Jobs | /jobs | POST | Request the creation of a Monitoring Job. |
| Individual Monitoring Job | /jobs/{jobId} | GET | Retrieve an existing "Individual Monitoring Job" resource. |
| PUT | Request the update of an existing "Individual Monitoring Job" resource. |
| PATCH | Request the modification of an existing "Individual Monitoring Job" resource. |
| DELETE | Request the deletion of an existing "Individual Monitoring Job" resource. |
| Monitoring Subscriptions | /subscriptions | POST | Request the creation of a Monitoring Subscription. |
| Individual Monitoring Subscription | /sbscriptions/{subscId} | GET | Retrieve an existing "Individual Monitoring Subscription" resource. |
| PUT | Request the update of an existing "Individual Monitoring Subscription" resource. |
| PATCH | Request the modification of an existing "Individual Monitoring Subscription" resource. |
| DELETE | Request the deletion of an existing "Individual Monitoring Subscription" resource. |

#### 6.6.3.2 Resource: Monitoring Jobs

##### 6.6.3.2.1 Description

This resource represents the collection of Monitoring Jobs managed by the NSCE Server.

##### 6.6.3.2.2 Resource Definition

Resource URI: **{apiRoot}/nsce-pam/****<apiVersion>/jobs**

This resource shall support the resource URI variables defined in table 6.6.3.2.2-1.

Table 6.6.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.6.1. |

##### 6.6.3.2.3 Resource Standard Methods

###### 6.6.3.2.3.1 POST

The HTTP POST method allows a service consumer to request the creation of a Monitoring Job at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.2.3.1-1.

Table 6.6.3.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.2.3.1-2 and the response data structures and response codes specified in table 6.6.3.2.3.1-3.

Table 6.6.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringJob | M | 1 | Represents the parameters to request the creation of a Monitoring Job. |

Table 6.6.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringJob | M | 1 | 201 Created | Successful case. The Monitoring Job is successfully created and a representation of the created "Individual Monitoring Job" resource shall be returned.An HTTP "Location" header that contains the URI of the created resource shall also be included. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.2.3.1-4: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure:{apiRoot}/nsce-pam/<apiVersion>/jobs/{jobId} |

##### 6.6.3.2.4 Resource Custom Operations

There are no resource custom operations defined for this resource in this release of the specification.

#### 6.6.3.3 Resource: Individual Monitoring Job

##### 6.6.3.3.1 Description

This resource represents a Monitoring Job managed by the NSCE Server.

##### 6.6.3.3.2 Resource Definition

Resource URI: **{apiRoot}/nsce-pam/<apiVersion>/jobs/{jobId}**

This resource shall support the resource URI variables defined in table 6.6.3.3.2-1.

Table 6.6.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.6.1. |
| jobId | string | Represents the identifier of the "Individual Monitoring Job" resource. |

##### 6.6.3.3.3 Resource Standard Methods

###### 6.6.3.3.3.1 GET

The HTTP GET method allows a service consumer to retrieve an existing "Individual Monitoring Job" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.3.3.1-1.

Table 6.6.3.3.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.3.3.1-2 and the response data structures and response codes specified in table 6.6.3.3.3.1-3.

Table 6.6.3.3.3.1-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.6.3.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringJob | M | 1 | 200 OK | Successful case. The requested "Individual Monitoring Job" resource shall be returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.3.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.3.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

###### 6.6.3.3.3.2 PUT

The HTTP PUT method allows a service consumer to request the update of an existing "Individual Monitoring Job" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.3.3.2-1.

Table 6.6.3.3.3.2-1: URI query parameters supported by the PUT method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.3.3.2-2 and the response data structures and response codes specified in table 6.6.3.3.3.2-3.

Table 6.6.3.3.3.2-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringJob | M | 1 | Represents the updated representation of the "Individual Monitoring Job" resource. |

Table 6.6.3.3.3.2-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringJob | M | 1 | 200 OK | Successful case. The "Individual Monitoring Job" resource is successfully updated and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Monitoring Job" resource is successfully updated and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PUT method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

###### 6.6.3.3.3.3 PATCH

The HTTP PATCH method allows a service consumer to request the modification of an existing "Individual Monitoring Job" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.3.3.3-1.

Table 6.6.3.3.3.3-1: URI query parameters supported by the PATCH method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.3.3.3-2 and the response data structures and response codes specified in table 6.6.3.3.3.3-3.

Table 6.6.3.3.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringJobPatch | M | 1 | Represents the parameters to request the modification of the "Individual Monitoring Job" resource. |

Table 6.6.3.3.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringJob | M | 1 | 200 OK | Successful case. The "Individual Monitoring Job" resource is successfully modified and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Monitoring Job" resource is successfully updated and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PATCH method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.3.3.3-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.3.3.3-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

###### 6.6.3.3.3.4 DELETE

The HTTP DELETE method allows a service consumer to request the deletion of an existing "Individual Monitoring Job" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.3.3.4-1.

Table 6.6.3.3.3.4-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.3.3.4-2 and the response data structures and response codes specified in table 6.6.3.3.3.4-3.

Table 6.6.3.3.3.4-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.6.3.3.3.4-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | Successful case. The "Individual Monitoring Job" resource is successfully deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.3.3.4-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.3.3.4-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

##### 6.6.3.3.4 Resource Custom Operations

There are no resource custom operations defined for this resource in this release of the specification.

#### 6.6.3.4 Resource: Monitoring Subscriptions

##### 6.6.3.4.1 Description

This resource represents the collection of Monitoring Subscriptions managed by the NSCE Server.

##### 6.6.3.4.2 Resource Definition

Resource URI: **{apiRoot}/nsce-pam/<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in table 6.6.3.4.2-1.

Table 6.6.3.4.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.6.1. |

##### 6.6.3.4.3 Resource Standard Methods

###### 6.6.3.4.3.2 POST

The HTTP POST method allows a service consumer to request the creation of a Monitoring Subscription at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.4.3.2-1.

Table 6.6.3.4.3.2-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.4.3.2-2 and the response data structures and response codes specified in table 6.6.3.4.3.2-3.

Table 6.6.3.4.3.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringSubsc | M | 1 | Represents the parameters to request the creation of a Monitoring Subscription. |

Table 6.6.3.4.3.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringSubsc | M | 1 | 201 Created | Successful case. The Monitoring Subscription is successfully created and a representation of the created "Individual Monitoring Subscription" resource shall be returned.An HTTP "Location" header that contains the resource URI of the created resource shall also be included. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.4.3.2-4: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure:{apiRoot}/nsce-pam/<apiVersion>/subscriptions/{subscId} |

##### 6.6.3.4.4 Resource Custom Operations

There are no resource custom operations defined for this resource in this release of the specification.

#### 6.6.3.5 Resource: Individual Monitoring Subscription

##### 6.6.3.5.1 Description

This resource represents a Monitoring Subscription managed by the NSCE Server.

##### 6.6.3.5.2 Resource Definition

Resource URI: **{apiRoot}/nsce-pam/<apiVersion>/subscriptions/{subscId}**

This resource shall support the resource URI variables defined in table 6.6.3.5.2-1.

Table 6.6.3.5.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.6.1. |
| subscId | string | Represents the identifier of the "Individual Monitoring Subscription" resource. |

##### 6.6.3.5.3 Resource Standard Methods

###### 6.6.3.5.3.1 GET

The HTTP GET method allows a service consumer to retrieve an existing "Individual Monitoring Subscription" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.5.3.1-1.

Table 6.6.3.5.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.5.3.1-2 and the response data structures and response codes specified in table 6.6.3.5.3.1-3.

Table 6.6.3.5.3.1-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.6.3.5.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringSubsc | M | 1 | 200 OK | Successful case. The requested "Individual Monitoring Subscription" resource shall be returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.5.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.5.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

###### 6.6.3.5.3.2 PUT

The HTTP PUT method allows a service consumer to request the update of an existing "Individual Monitoring Subscription" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.5.3.2-1.

Table 6.6.3.5.3.2-1: URI query parameters supported by the PUT method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.5.3.2-2 and the response data structures and response codes specified in table 6.6.3.5.3.2-3.

Table 6.6.3.5.3.2-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringSubsc | M | 1 | Represents the updated representation of the "Individual Monitoring Subscription" resource. |

Table 6.6.3.5.3.2-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringSubsc | M | 1 | 200 OK | Successful case. The "Individual Monitoring Subscription" resource is successfully updated and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Monitoring Subscription" resource is successfully updated and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PUT method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.5.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.5.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

###### 6.6.3.5.3.3 PATCH

The HTTP PATCH method allows a service consumer to request the modification of an existing "Individual Monitoring Subscription" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.5.3.3-1.

Table 6.6.3.5.3.3-1: URI query parameters supported by the PATCH method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.5.3.3-2 and the response data structures and response codes specified in table 6.6.3.5.3.3-3.

Table 6.6.3.5.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringSubscPatch | M | 1 | Represents the parameters to request the modification of the "Individual Monitoring Subscription" resource. |

Table 6.6.3.5.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringSubsc | M | 1 | 200 OK | Successful case. The "Individual Monitoring Subscription" resource is successfully modified and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Monitoring Subscription" resource is successfully modified and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PATCH method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.5.3.3-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.5.3.3-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

###### 6.6.3.5.3.4 DELETE

The HTTP DELETE method allows a service consumer to request the deletion of an existing "Individual Monitoring Subscription" resource at the NSCE Server.

This method shall support the URI query parameters specified in table 6.6.3.5.3.4-1.

Table 6.6.3.5.3.4-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.6.3.5.3.4-2 and the response data structures and response codes specified in table 6.6.3.5.3.4-3.

Table 6.6.3.5.3.4-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.6.3.5.3.4-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | Successful case. The "Individual Monitoring Subscription" resource is successfully deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI of the resource located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the HTTP DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.3.5.3.4-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

Table 6.6.3.5.3.4-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative NSCE Server. |

### 6.6.4 Custom Operations without associated resources

#### 6.6.4.1 Overview

The structure of the custom operation URIs of the NSCE\_PerfMonitoring API is shown in Figure 6.6.4.1-1.



Figure 6.6.4.1-1: Custom operation URI structure of the NSCE\_PerfMonitoring API

Table 6.10.4.1-1 provides an overview of the custom operations and applicable HTTP methods defined for the NSCE\_PerfMonitoring API.

Table 6.6.4.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Custom operation name | Custom operation URI | Mapped HTTP method | Description |
| Request | /request | POST | Enables a service consumer to request a multiple slices related performance and analytics consolidated reporting. |

The custom operations shall support the URI variables defined in table 6.6.4.1-2.

Table 6.6.4.1-2: URI variables for this custom operation

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.6.1. |

#### 6.6.4.2 Operation: Request

##### 6.6.4.2.1 Description

The custom operation enables a service consumer to request a multiple slices related performance and analytics consolidated reporting to the NSCE Server.

##### 6.6.4.2.2 Operation Definition

This operation shall support the request data structures specified in table 6.6.4.2.2-1 and the response data structures and response codes specified in table 6.6.4.2.2-2.

Table 6.6.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringReq | M | 1 | Contains the parameters to request a multiple slices related performance and analytics consolidated report. |

Table 6.6.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| MonitoringResp | M | 1 | 200 OK | Successful case. The requested multiple slices related performance and analytics consolidated report shall be returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative target URI located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative target URI located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2] |
| NOTE: The manadatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.4.2.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative NSCE Server. |

Table 6.6.4.2.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative NSCE Server. |

### 6.6.5 Notifications

#### 6.6.5.1 General

Notifications shall comply to clause 6.6 of 3GPP TS 29.549 [15].

Table 6.6.5.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description(service operation) |
| Monitoring Notification | {notifUri} | POST | This service operation enables a NSCE Server to notify a previously subscribed service consumer on Monitoring event(s). |

#### 6.6.5.2 Monitoring Notification

##### 6.6.5.2.1 Description

The Monitoring Notification is used by the NSCE Server to notify a previously subscribed service consumer on Monitoring event(s).

##### 6.6.5.2.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 6.6.5.2.2-1.

Table 6.6.5.2.2-1: Callback URI variables

|  |  |
| --- | --- |
| Name | Definition |
| notifUri | Represents the callback URI encoded as a string formatted as a URI. |

##### 6.6.5.2.3 Standard Methods

6.6.5.2.3.1 POST

This method shall support the request data structures specified in table 6.6.5.2.3.1-1 and the response data structures and response codes specified in table 6.6.5.2.3.1-2.

Table 6.6.5.2.3.1-1: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| MonitoringNotif | M | 1 | Represents the Monitoring Notification. |

Table 6.6.5.2.3.1-2: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | Successful case. The Monitoring Notification is successfully received and processed. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. |

Table 6.6.5.2.3.1-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative service consumer towards which the notification should be redirected. |

Table 6.6.5.2.3.1-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative service consumer towards which the notification should be redirected. |

### 6.6.6 Data Model

#### 6.6.6.1 General

This clause specifies the application data model supported by the API.

Table 6.6.6.1-1 specifies the data types defined for the NSCE\_PerfMonitoring API.

Table 6.6.6.1-1: NSCE\_PerfMonitoring API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| MonitoringJob | 6.6.6.2.2 | Represents a Monitoring Job. |  |
| MonitoringJobPatch | 6.6.6.2.3 | Represents the requested modifications to a Monitoring Job. |  |
| MonitoringMetric | 6.6.6.2.4 | Represents the parameters of a network slice related performance and analytics monitoring metric. |  |
| MonitoringNotif | 6.6.6.2.9 | Represents a Monitoring Notification. |  |
| MonitoringReq | 6.6.6.2.12 | Represents a multiple slices related performance and analytics consolidated reporting request. |  |
| MonitoringResp | 6.6.6.2.13 | Represents a multiple slices related performance and analytics consolidated reporting response. |  |
| MonitoringSubsc | 6.6.6.2.6 | Represents a Monitoring Subscription. |  |
| MonitoringSubscPatch | 6.6.6.2.7 | Represents the requested modifications to a Monitoring Subscription. |  |
| MonPerfAnalyRes | 6.6.6.2.11 | Represents a monitored performance or analytics result. |  |
| MonPerfAnalytics | 6.6.6.2.5 | Represents a monitored performance or analytics information. |  |
| MonReqMetrics | 6.6.6.2.14 | Represents the parameters of a network slice related performance and analytics monitoring metric used within a multiple slices related performance and analytics consolidated reporting request. |  |
| MonRespRepData | 6.6.6.2.15 | Represents a network slice related performance and analytics monitoring report instance provided as part of a multiple slices related performance and analytics consolidated reporting response. |  |
| ReportingData | 6.6.6.2.10 | Represents a network slice related performance and analytics monitoring report. |  |
| ReportingInfo | 6.6.6.2.8 | Represents the network slice related performance and analytics monitoring reporting information. |  |

Table 6.6.6.1-2 specifies data types re-used by the NSCE\_PerfMonitoring API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the NSCE\_PerfMonitoring API.

Table 6.6.6.1-2: NSCE\_PerfMonitoring API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Bytes | 3GPP TS 29.122 [2] | Represents a sequence of bytes. |  |
| DateTime | 3GPP TS 29.122 [2] | Represents a date and a time. |  |
| DurationSec | 3GPP TS 29.122 [2] | Represents a time duration. |  |
| NetSliceId | Clause 6.3.6.2.15 | Represents the identification information of a network slice. |  |
| SupportedFeatures | 3GPP TS 29.571 [18] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |

#### 6.6.6.2 Structured data types

##### 6.6.6.2.1 Introduction

This clause defines the data structures to be used in resource representations.

##### 6.6.6.2.2 Type: MonitoringJob

Table 6.6.6.2.2-1: Definition of type MonitoringJob

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| monMetrics | map(MonitoringMetric) | M | 1..N | Contains the requested performance and analytics monitoring metric(s).The key of the map shall be any unique string encoded value. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.6.8.This attribute shall be present only when feature negotiation needs to take place. |  |

##### 6.6.6.2.3 Type: MonitoringJobPatch

Table 6.6.6.2.3-1: Definition of type MonitoringJobPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| monMetrics | map(MonitoringMetric) | O | 1..N | Contains the requested performance and analytics monitoring metric(s).The key of the map shall be any unique string encoded value and shall be set to the same value as the one provided during the creation of the corresponding Monitoring Job. |  |

##### 6.6.6.2.4 Type: MonitoringMetric

Table 6.6.6.2.4-1: Definition of type MonitoringMetric

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServId | string | C | 0..1 | Contains the identifier of the VAL Service to which the performance and analytics monitoring is related.(NOTE 1) |  |
| netSliceIds | array(NetSliceId) | C | 1..N | Contains the identifier(s) of the network slice(s) to which the performance and analytics monitoring is related.(NOTE 1, NOTE 2) |  |
| perfAnalyList | array(MonPerfAnalytics) | M | 1..N | Contains the list of the performance and/or analytics information to be monitored.(NOTE 2) |  |
| startTime | DateTime | M | 1 | Contains the start time of the performance and analytics monitoring. |  |
| endTime | DateTime | O | 0..1 | Contains the end time of the performance and analytics monitoring.If this attribute is not present, the performance and analytics monitoring shall not stop until explicitly terminated. |  |
| NOTE 1: At least one of these attributes shall be present.NOTE 2: When the "netSliceIds" attribute is present and the "monNetSliceIds" attribute of the MonPerfAnalytics data structure is present within an array element of the "perfAnalyList" attribute, then the network slice(s) identifier by the "monNetSliceIds" attribute of the MonPerfAnalytics data structure shall be a subset of the network slice(s) identified by the "netSliceIds" attribute. |

##### 6.6.6.2.5 Type: MonPerfAnalytics

Table 6.6.6.2.5-1: Definition of type MonPerfAnalytics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| monNetSliceIds | array(NetSliceId) | O | 1..N | Contains the identifier of the network slice(s) for which the monitoring of the metric provided within the "metric" attribute should be performed. |  |
| metricName | MonPerfMetric | M | 1 | Contains the name of the performance or analytics metric to be monitored. |  |
| metricCustName | string | C | 0..1 | Contains the customized name of the performance or analytics metric to be monitored.This attribute shall be present only when the "metricName" attribute is set to "OTHER". |  |

##### 6.6.6.2.6 Type: MonitoringSubsc

Table 6.6.6.2.6-1: Definition of type MonitoringSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| reqReportingList | map(ReportingInfo) | M | 1..N | Contains the requested performance and analytics reporting information.The key of the map shall be any unique string encoded value. |  |
| notifUri | Uri | M | 1 | Contains the URI via which the network slice related performance and analytics monitoring event(s) notifications shall be delivered. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.6.8.This attribute shall be present only when feature negotiation needs to take place. |  |

##### 6.6.6.2.7 Type: MonitoringSubscPatch

Table 6.6.6.2.7-1: Definition of type MonitoringSubscPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| monMetrics | map(MonitoringMetric) | O | 1..N | Contains the updated requested performance and analytics reporting information.The key of the map shall be any unique string encoded value and shall be set to the same value as the one provided during the creation of the corresponding Monitoring Subscription. |  |
| notifUri | Uri | O | 0..1 | Contains the updated URI via which the network slice related performance and analytics monitoring event(s) notifications shall be delivered. |  |

##### 6.6.6.2.8 Type: ReportingInfo

Table 6.6.6.2.8-1: Definition of type ReportingInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServId | string | C | 0..1 | Contains the identifier of the VAL Service to which the performance and analytics monitoring is related.(NOTE 1, NOTE 2) |  |
| netSliceIds | array(NetSliceId) | C | 1..N | Contains the identifier(s) of the network slice(s) to which the performance and analytics monitoring is related.(NOTE 1, NOTE 2) |  |
| perfAnalyList | array(MonPerfAnalytics) | M | 1..N | Contains the list of the performance and/or analytics information to be monitored.(NOTE 2) |  |
| startTime | DateTime | M | 1 | Contains the start time of the performance and analytics monitoring. |  |
| endTime | DateTime | M | 1 | Contains the end time of the performance and analytics monitoring. |  |
| repPeriodicity | DurationSec | O | 0..1 | Contains the reporting periodicity, i.e., the time interval between consecutive reportings. |  |
| NOTE 1: At least one of these attributes shall be present.NOTE 2: When the "netSliceIds" attribute is present and the "monNetSliceIds" attribute of the MonPerfAnalytics data structure is present within an array element of the "perfAnalyList" attribute, then the network slice(s) identifier by the "monNetSliceIds" attribute of the MonPerfAnalytics data structure shall be a subset of the network slice(s) identified by the "netSliceIds" attribute. |

##### 6.6.6.2.9 Type: MonitoringNotif

Table 6.6.6.2.9-1: Definition of type MonitoringNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscId | string | M | 1 | Contains the identifier of the Monitoring Subscription to which the notification is related. |  |
| reports | array(ReportingData) | M | 1..N | Contains the network slice related performance and analytics report(s). |  |

##### 6.6.6.2.10 Type: ReportingData

Table 6.6.6.2.10-1: Definition of type ReportingData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServId | string | C | 0..1 | Contains the identifier of the VAL Service to which the performance and analytics monitoring report is related.(NOTE 1, NOTE 2) |  |
| netSliceIds | array(NetSliceId) | C | 1..N | Contains the identifier(s) of the network slice(s) to which the performance and analytics monitoring report is related.(NOTE 1, NOTE 2) |  |
| perfResults | array(MonPerfAnalyRes) | M | 1..N | Contains the list of the network slice related performance and analytics result(s).(NOTE 2) |  |
| NOTE 1: At least one of these attributes shall be present.NOTE 2: When the "netSliceIds" attribute is present and the "monNetSliceIds" attribute of the MonPerfAnalyRes data structure is present within an array element of the "perfResults" attribute, then the network slice(s) identifier by the "monNetSliceIds" attribute of the MonPerfAnalyRes data structure shall be a subset of the network slice(s) identified by the "netSliceIds" attribute. |

##### 6.6.6.2.11 Type: MonPerfAnalyRes

Table 6.6.6.2.11-1: Definition of type MonPerfAnalyRes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| monNetSliceIds | array(NetSliceId) | O | 1..N | Contains the identifier of the network slice(s) for which the reported results are related. |  |
| metricName | MonPerfMetric | M | 1 | Contains the name of the reported performance or analytics metric. |  |
| metricCustName | string | C | 0..1 | Contains the customized name of the performance or analytics metric to be monitored.This attribute shall be present only when the "metricName" attribute is set to "OTHER". |  |
| metricValue | Bytes | M | 1 | Contains the value of the reported performance or analytics information. |  |

##### 6.6.6.2.12 Type: MonitoringReq

Table 6.6.6.2.12-1: Definition of type MonitoringReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| monMetrics | array(MonReqMetrics) | M | 1..N | Contains the requested multiple slices related performance and analytics monitoring metric(s). |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.6.8.This attribute shall be present only when feature negotiation needs to take place. |  |

##### 6.6.6.2.13 Type: MonitoringResp

Table 6.6.6.2.13-1: Definition of type MonitoringResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| perfResults | array(MonRespRepData) | M | 1..N | Contains the list of the multiple slices related network slice related performance and analytics result(s). |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.6.8.This attribute shall be present only when feature negotiation needs to take place. |  |

##### 6.6.6.2.14 Type: MonReqMetrics

Table 6.6.6.2.14-1: Definition of type MonReqMetrics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServId | string | C | 0..1 | Contains the identifier of the VAL Service to which the performance and analytics monitoring is related.(NOTE 1, NOTE 2) |  |
| netSliceIds | array(NetSliceId) | C | 1..N | Contains the identifier(s) of the network slice(s) to which the performance and analytics monitoring is related.(NOTE 1, NOTE 2) |  |
| perfAnalyList | array(MonPerfAnalytics) | M | 1..N | Contains the list of the performance and/or analytics information to be monitored.(NOTE 2) |  |
| startTime | DateTime | M | 1 | Contains the start time of the performance and analytics monitoring. |  |
| endTime | DateTime | M | 1 | Contains the end time of the performance and analytics monitoring. |  |
| NOTE 1: At least one of these attributes shall be present.NOTE 2: When the "netSliceIds" attribute is present and the "monNetSliceIds" attribute of the MonPerfAnalytics data structure is present within an array element of the "perfAnalyList" attribute, then the network slice(s) identifier by the "monNetSliceIds" attribute of the MonPerfAnalytics data structure shall be a subset of the network slice(s) identified by the "netSliceIds" attribute. |

##### 6.6.6.2.15 Type: MonRespRepData

Table 6.6.6.2.15-1: Definition of type MonRespRepData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServId | string | C | 0..1 | Contains the identifier of the VAL Service to which the performance and analytics monitoring report is related.(NOTE 1, NOTE 2) |  |
| netSliceIds | array(NetSliceId) | C | 1..N | Contains the identifier(s) of the network slice(s) to which the performance and analytics monitoring report is related.(NOTE 1, NOTE 2) |  |
| perfResults | array(MonPerfAnalyRes) | M | 1..N | Contains the list of the network slice related performance and analytics result(s).(NOTE 2) |  |
| startTime | DateTime | M | 1 | Contains the start time of the performance and analytics monitoring. |  |
| endTime | DateTime | M | 1 | Contains the end time of the performance and analytics monitoring. |  |
| NOTE 1: At least one of these attributes shall be present.NOTE 2: When the "netSliceIds" attribute is present and the "monNetSliceIds" attribute of the MonPerfAnalyRes data structure is present within an array element of the "perfResults" attribute, then the network slice(s) identifier by the "monNetSliceIds" attribute of the MonPerfAnalyRes data structure shall be a subset of the network slice(s) identified by the "netSliceIds" attribute. |

#### 6.6.6.3 Simple data types and enumerations

##### 6.6.6.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

##### 6.6.6.3.2 Simple data types

The simple data types defined in table 6.6.6.3.2-1 shall be supported.

Table 6.6.6.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  |  |  |  |

##### 6.6.6.3.3 Enumeration: MonPerfMetric

The enumeration MonPerfMetric represents a performance or analytics metric. It shall comply with the provisions defined in table 6.6.6.3.3-1.

Table 6.6.6.3.3-1: Enumeration MonPerfMetric

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| OTHER | Indicates that the performance or analytics metric to be monitored is a customized metric. |  |

Editor's Note: The full list of enumeration values are FFS.

#### 6.6.6.4 Data types describing alternative data types or combinations of data types

There are no data types describing alternative data types or combinations of data types defined for this API in this release of the specification.

#### 6.6.6.5 Binary data

##### 6.6.6.5.1 Binary Data Types

Table 6.6.6.5.1-1: Binary Data Types

|  |  |  |
| --- | --- | --- |
| Name | Clause defined | Content type |
|  |  |  |

### 6.6.7 Error Handling

#### 6.6.7.1 General

For the NSCE\_PerfMonitoring API, error handling shall be supported as specified in clause 6.7 of 3GPP TS 29.549 [13].

In addition, the requirements in the following clauses are applicable for the NSCE\_PerfMonitoring API.

#### 6.6.7.2 Protocol Errors

No specific protocol errors for the NSCE\_PerfMonitoring API are specified.

#### 6.6.7.3 Application Errors

The application errors defined for the NSCE\_PerfMonitoring API are listed in Table 6.6.7.3-1.

Table 6.6.7.3-1: Application errors

|  |  |  |  |
| --- | --- | --- | --- |
| Application Error | HTTP status code | Description | Applicability |
|  |  |  |  |

### 6.6.8 Feature negotiation

The optional features listed in table 6.6.8-1 are defined for the NSCE\_PerfMonitoring API. They shall be negotiated using the extensibility mechanism defined in clause 6.8 of 3GPP TS 29.549 [13].

Table 6.6.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
|  |  |  |

### 6.6.9 Security

The provisions of clause 9 of 3GPP TS 29.549 [13] shall apply for the NSCE\_PerfMonitoring API.

\* \* \* \* Next changes \* \* \* \*

# A.7 NSCE\_PerfMonitoring API

openapi: 3.0.0

info:

 title: NSCE Server Network Slice Performance and Analytics Monitoring Service

 version: 1.0.0-alpha.1

 description: |

 NSCE Server Network Slice Performance and Analytics Monitoring Service.

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externalDocs:

 description: >

 3GPP TS 29.435 V0.2.0; Service Enabler Architecture Layer for Verticals (SEAL);

 Network Slice Capability Exposure (NSCE) Server Service(s); Stage 3.

 url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.435/

servers:

 - url: '{apiRoot}/nsce-pam/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 6.5 of 3GPP TS 29.549

security:

 - {}

 - oAuth2ClientCredentials: []

paths:

 /jobs:

 post:

 summary: Request the creation of a Monitoring Job.

 operationId: CreateMonJob

 tags:

 - Monitoring Jobs (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringJob'

 responses:

 '201':

 description: >

 Created. The Monitoring Job is successfully created and a representation of the

 created Individual Monitoring Job resource shall be returned.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringJob'

 headers:

 Location:

 description: >

 Contains the URI of the created Individual Monitoring Job resource.

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /jobs/{jobId}:

 parameters:

 - name: jobId

 in: path

 description: >

 Represents the identifier of the Individual Monitoring Job resource.

 required: true

 schema:

 type: string

 get:

 summary: Retrieve an existing Individual Monitoring Job resource.

 operationId: GetIndMonJob

 tags:

 - Individual Monitoring Job (Document)

 responses:

 '200':

 description: >

 OK. The requested Individual Monitoring Job resource shall be returned.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringJob'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 put:

 summary: Request the update of an existing Individual Monitoring Job resource.

 operationId: UpdateIndMonJob

 tags:

 - Individual Monitoring Job (Document)

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringJob'

 responses:

 '200':

 description: >

 OK. The Individual Monitoring Job resource is successfully updated and a representation

 of the updated resource shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringJob'

 '204':

 description: >

 No Content. The Individual Monitoring Job resource is successfully updated and no

 content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 summary: Request the modification of an existing Individual Monitoring Job resource.

 operationId: ModifyIndMonJob

 tags:

 - Individual Monitoring Job (Document)

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

 $ref: '#/components/schemas/MonitoringJobPatch'

 responses:

 '200':

 description: >

 OK. The Individual Monitoring Job resource is successfully modified and a representation

 of the updated resource shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringJob'

 '204':

 description: >

 No Content. The Individual Monitoring Job resource is successfully modified and no

 content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Request the deletion of an existing Individual Monitoring Job resource.

 operationId: DeleteIndMonJob

 tags:

 - Individual Monitoring Job (Document)

 responses:

 '204':

 description: >

 No Content. The Individual Monitoring Job resource is successfully deleted.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /subscriptions:

 post:

 summary: Request the creation of a Monitoring Subscription.

 operationId: CreateMonSubsc

 tags:

 - Monitoring Subscriptions (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringSubsc'

 responses:

 '201':

 description: >

 Created. The Monitoring Subscription is successfully created and a representation of the

 created Individual Monitoring Subscription resource shall be returned.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringSubsc'

 headers:

 Location:

 description: >

 Contains the URI of the created Individual Monitoring Subscription resource.

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 callbacks:

 MonitoringNotif:

 '{$request.body#/notifUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringNotif'

 responses:

 '204':

 description: >

 No Content. The Monitoring Notification is successfully received and

 Acknowledged.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /subscriptions/{subscId}:

 parameters:

 - name: subscId

 in: path

 description: >

 Represents the identifier of the Individual Monitoring Subscription resource.

 required: true

 schema:

 type: string

 get:

 summary: Retrieve an existing Individual Monitoring Subscription resource.

 operationId: GetIndMonSubsc

 tags:

 - Individual Monitoring Subscription (Document)

 responses:

 '200':

 description: >

 OK. The requested Individual Monitoring Subscription resource shall be returned.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringSubsc'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 put:

 summary: Request the update of an existing Individual Monitoring Subscription resource.

 operationId: UpdateIndMonSubsc

 tags:

 - Individual Monitoring Subscription (Document)

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringSubsc'

 responses:

 '200':

 description: >

 OK. The Individual Monitoring Subscription resource is successfully updated and a

 representation of the updated resource shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringSubsc'

 '204':

 description: >

 No Content. The Individual Monitoring Subscription resource is successfully updated

 and no content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 summary: Request the modification of an existing Individual Monitoring Subscription resource.

 operationId: ModifyIndMonSubsc

 tags:

 - Individual Monitoring Subscription (Document)

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

 $ref: '#/components/schemas/MonitoringSubscPatch'

 responses:

 '200':

 description: >

 OK. The Individual Monitoring Subscription resource is successfully modified and a

 representation of the updated resource shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringSubsc'

 '204':

 description: >

 No Content. The Individual Monitoring Subscription resource is successfully modified

 and no content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Request the deletion of an existing Individual Monitoring Subscription resource.

 operationId: DeleteIndMonSubsc

 tags:

 - Individual Monitoring Subscription (Document)

 responses:

 '204':

 description: >

 No Content. The Individual Monitoring Subscription resource is successfully deleted.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /request:

 post:

 summary: Enables to request a multiple slices related performance and analytics consolidated reporting.

 operationId: MultiSlicesMonRepReq

 tags:

 - Multiple Slices related Performance and Analytics Consolidated Reporting Request

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringReq'

 responses:

 '200':

 description: >

 OK. The requested multiple slices related performance and analytics consolidated report

 shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/MonitoringResp'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

#

# STRUCTURED DATA TYPES

#

 MonitoringJob:

 description: >

 Represents a Monitoring Job.

 type: object

 properties:

 monMetrics:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/MonitoringMetric'

 minProperties: 1

 description: >

 Contains the requested performance and analytics monitoring metric(s).

 The key of the map shall be any unique string encoded value.

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - monMetrics

 MonitoringJobPatch:

 description: >

 Represents the requested modifications to a Monitoring Job.

 type: object

 properties:

 monMetrics:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/MonitoringMetric'

 minProperties: 1

 description: >

 Contains the requested performance and analytics monitoring metric(s).

 The key of the map shall be any unique string encoded value and shall be set to the same

 value as the one provided during the creation of the corresponding Monitoring Job.

 MonitoringMetric:

 description: >

 Represents the parameters of a network slice related performance and analytics monitoring

 metric.

 type: object

 properties:

 valServId:

 type: string

 netSliceIds:

 type: array

 items:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 minItems: 1

 perfAnalyList:

 type: array

 items:

 $ref: '#/components/schemas/MonPerfAnalytics'

 minItems: 1

 startTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 endTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 required:

 - perfAnalyList

 - startTime

 anyOf:

 - required: [valServId]

 - required: [netSliceIds]

 MonPerfAnalytics:

 description: >

 Represents a monitored performance or analytics information.

 metric.

 type: object

 properties:

 monNetSliceIds:

 type: array

 items:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 minItems: 1

 metricName:

 $ref: '#/components/schemas/MonPerfMetric'

 metricCustName:

 type: string

 required:

 - metricName

 MonitoringSubsc:

 description: >

 Represents a Monitoring Subscription.

 type: object

 properties:

 reqReportingList:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/ReportingInfo'

 minProperties: 1

 description: >

 Contains the requested performance and analytics monitoring metric(s).

 The key of the map shall be any unique string encoded value.

 notifUri:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - reqReportingList

 - notifUri

 MonitoringSubscPatch:

 description: >

 Represents the requested modifications to a Monitoring Subscription.

 type: object

 properties:

 monMetrics:

 type: object

 additionalProperties:

 $ref: '#/components/schemas/ReportingInfo'

 minProperties: 1

 description: >

 Contains the requested performance and analytics monitoring metric(s).

 The key of the map shall be any unique string encoded value and shall be set to the same

 value as the one provided during the creation of the corresponding Monitoring

 Subscription.

 notifUri:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 ReportingInfo:

 description: >

 Represents the network slice related performance and analytics monitoring reporting

 information.

 type: object

 properties:

 valServId:

 type: string

 netSliceIds:

 type: array

 items:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 minItems: 1

 perfAnalyList:

 type: array

 items:

 $ref: '#/components/schemas/MonPerfAnalytics'

 minItems: 1

 startTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 endTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 repPeriodicity:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DurationSec'

 required:

 - perfAnalyList

 - startTime

 - endTime

 anyOf:

 - required: [valServId]

 - required: [netSliceIds]

 MonitoringNotif:

 description: >

 Represents a Monitoring Notification.

 type: object

 properties:

 subscId:

 type: string

 reports:

 type: array

 items:

 $ref: '#/components/schemas/ReportingData'

 minItems: 1

 required:

 - subscId

 - reports

 ReportingData:

 description: >

 Represents a network slice related performance and analytics monitoring report.

 type: object

 properties:

 valServId:

 type: string

 netSliceIds:

 type: array

 items:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 minItems: 1

 perfResults:

 type: array

 items:

 $ref: '#/components/schemas/MonPerfAnalyRes'

 minItems: 1

 required:

 - perfResults

 anyOf:

 - required: [valServId]

 - required: [netSliceIds]

 MonPerfAnalyRes:

 description: >

 Represents a monitored performance or analytics result.

 metric.

 type: object

 properties:

 netSliceIds:

 type: array

 items:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 minItems: 1

 metricName:

 $ref: '#/components/schemas/MonPerfMetric'

 metricCustName:

 type: string

 metricValue:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Bytes'

 required:

 - metricName

 - metricValue

 MonitoringReq:

 description: >

 Represents a multiple slices related performance and analytics consolidated reporting

 request.

 type: object

 properties:

 monMetrics:

 type: array

 items:

 $ref: '#/components/schemas/MonReqMetrics'

 minItems: 1

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - monMetrics

 MonitoringResp:

 description: >

 Represents a multiple slices related performance and analytics consolidated reporting

 response.

 type: object

 properties:

 perfResults:

 type: array

 items:

 $ref: '#/components/schemas/MonRespRepData'

 minItems: 1

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - perfResults

 MonReqMetrics:

 description: >

 Represents the parameters of a network slice related performance and analytics monitoring

 metric used within a multiple slices related performance and analytics consolidated

 reporting request.

 type: object

 properties:

 valServId:

 type: string

 netSliceIds:

 type: array

 items:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 minItems: 1

 perfAnalyList:

 type: array

 items:

 $ref: '#/components/schemas/MonPerfAnalytics'

 minItems: 1

 startTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 endTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 required:

 - perfAnalyList

 - startTime

 - endTime

 anyOf:

 - required: [valServId]

 - required: [netSliceIds]

 MonRespRepData:

 description: >

 Represents a network slice related performance and analytics monitoring report instance

 provided as part of a multiple slices related performance and analytics consolidated

 reporting response.

 type: object

 properties:

 valServId:

 type: string

 netSliceIds:

 type: array

 items:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 minItems: 1

 perfResults:

 type: array

 items:

 $ref: '#/components/schemas/MonPerfAnalyRes'

 minItems: 1

 startTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 endTime:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

 required:

 - perfResults

 - startTime

 - endTime

 anyOf:

 - required: [valServId]

 - required: [netSliceIds]

# SIMPLE DATA TYPES

#

#

# ENUMERATIONS

#

 MonPerfMetric:

 anyOf:

 - type: string

 enum:

 - OTHER

 - type: string

 description: >

 This string provides forward-compatibility with future extensions to the enumeration

 and is not used to encode content defined in the present version of this API.

 description: |

 Represents a performance or analytics metric.

 Possible values are:

 - OTHER: Indicates that the performance or analytics metric to be monitored is a

 customized metric.

\* \* \* \* End of changes \* \* \* \*