**3GPP TSG-CT WG3 Meeting #138 *C3-246458***

**Orlando, US, 18 - 22 November, 2024 (Revision of C3-246270)**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | **1450** | **rev** | **1** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | RetrieveInfoUAVFlight API definitions | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | UAS\_Ph3 | | | | |  | ***Date:*** | | | 2024-11-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | SA2#165 agreed TS 23.256 CR 0141 (S2-2410853) adding Nnef\_RetrieveInfoUAVFlight service, hence needs to be updated accordingly in this TS. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding RetrieveInfoUAVFlight API definitions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not supporting stage 2 requirement on API definitions of the RetrieveInfoUAVFlight API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1, 5.39 (all new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 23.256 CR 0141 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

## 5.1 Introduction

The NEF Northbound APIs are a set of APIs defining the related procedures and resources for the interaction between the NEF and the AF.

Tables 5.1-1 summarizes the APIs defined in this specification.

Table 5.1-1: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Service Name | Clause defined | Description | OpenAPI Specification File | API Name | Annex |
| TrafficInfluence | 5.4 | Traffic Influence API | TS29522\_TrafficInfluence.yaml | 3gpp-traffic-influence | A.2 |
| NiddConfigurationTrigger | 5.5 | NIDD (Non-IP Data Delivery) Configuration Trigger API | TS29522\_NiddConfigurationTrigger.yaml | 3gpp-nidd-configuration-trigger | A.3 |
| AnalyticsExposure | 5.6 | Analytics Exposure API | TS29522\_AnalyticsExposure.yaml | 3gpp-analyticsexposure | A.4 |
| 5GLANParameterProvision | 5.7 | 5G LAN Parameter Provision API | TS29522\_5GLANParameterProvision.yaml | 3gpp-5glan-pp | A.5 |
| ApplyingBdtPolicy | 5.8 | Applying BDT Policy API | TS29522\_ApplyingBdtPolicy.yaml | 3gpp-applying-bdt-policy | A.6 |
| IPTVConfiguration | 5.9 | IPTV Configuration API | TS29522\_IPTVConfiguration.yaml | 3gpp-iptvconfiguration | A.7 |
| LpiParameterProvision | 5.10 | LPI (Location Privacy Indicator) Parameter Provision API | TS29522\_LpiParameterProvision.yaml | 3gpp-lpi-pp | A.8 |
| ServiceParameter | 5.11 | Service Parameter API | TS29522\_ServiceParameter.yaml | 3gpp-service-parameter | A.9 |
| ACSParameterProvision | 5.12 | ACS Parameter Provision API | TS29522\_ACSParameterProvision.yaml | 3gpp-acs-pp | A.10 |
| MoLcsNotify | 5.13 | MO LCS Notify API | TS29522\_MoLcsNotify.yaml | 3gpp-mo-lcs-notify | A.11 |
| AKMA | 5.14 | AKMA API | TS29522\_AKMA.yaml | 3gpp-akma | A.12 |
| TimeSyncExposure | 5.15 | Time Sync Exposure API | TS29522\_TimeSyncExposure.yaml | 3gpp-time-sync-exposure | A.13 |
| EcsAddressProvision | 5.16 | ECS Address Provision API | TS29522\_EcsAddressProvision.yaml | 3gpp-ecs-address-provision | A.14 |
| AMPolicyAuthorization | 5.17 | AM Policy Authorization API | TS29522\_AMPolicyAuthorization.yaml | 3gpp-am-policyauthorization | A.15 |
| AMInfluence | 5.18 | AM Influence API | TS29522\_AMInfluence.yaml | 3gpp-am-influence | A.16 |
| MBSTMGI | 5.19 | MBS TMGI API | TS29522\_MBSTMGI.yaml | 3gpp-mbs-tmgi | A.17 |
| MBSSession | 5.20 | MBS Session API | TS29522\_MBSSession.yaml | 3gpp-mbs-session | A.18 |
| EASDeployment | 5.21 | EAS Deployment API | TS29522\_EASDeployment.yaml | 3gpp-eas-deployment | A.19 |
| ASTI | 5.22 | ASTI API | TS29522\_ASTI.yaml | 3gpp-asti | A.20 |
| DataReporting | 5.23 | DataReporting API | TS29522\_DataReporting.yaml | 3gpp-data-reporting | A.21 |
| DataReportingProvisioning | 5.24 | DataReportingProvisioning API | TS29522\_DataReportingProvisioning.yaml | 3gpp-data-reporting-provisioning | A.22 |
| UEId | 5.25 | UE ID API | TS29522\_UEId.yaml | 3gpp-ueid | A.23 |
| MBSUserService | 5.26 | MBSUserService API | TS29522\_MBSUserService.yaml | 3gpp-mb-us | A.24 |
| MBSUserDataIngestSession | 5.27 | MBSUserDataIngestSession API | TS29522\_MBSUserDataIngestSession.yaml | 3gpp-mb-ud-ingest | A.25 |
| MSEventExposure | 5.28 | MSEventExposure API | TS29522\_MSEventExposure.yaml | 3gpp-event-exposure | A.26 |
| MBSGroupMsgDelivery | 5.29 | MBSGroupMsgDelivery API | TS29522\_MBSGroupMsgDelivery.yaml | 3gpp-mbs-group-msg | A.27 |
| DNAIMapping | 5.30 | DNAIMapping API | TS29522\_DNAIMapping.yaml | 3gpp-dnai-mapping | A.28 |
| PDTQPolicyNegotiation | 5.31 | PDTQPolicyNegotiation API | TS29522\_PDTQPolicyNegotiation.yaml | 3gpp-pdtq-policy-negotiation | A.29 |
| MemberUESelectionAssistance | 5.32 | MemberUESelectionAssistance API | TS29522\_MemberUESelectionAssistance.yaml | 3gpp-musa | A.30 |
| GroupParametersProvisioning | 5.33 | Group Parameters Provisioning API | TS29.522\_GroupParametersProvisioning.yaml | 3gpp-grp-pp | A.31 |
| SliceParamProvision | 5.34 | Network Slice Parameters Provisioning API | TS29.522\_SliceParamProvision.yaml | 3gpp-slice-pp | A.32 |
| UEAddress | 5.35 | UE Address API | TS29522\_UEAddress.yaml | 3gpp-ue-address | A.33 |
| ECSAddress | 5.36 | ECS Address Configuration Information API | TS29522\_ECSAddress.yaml | 3gpp-ecs-address | A.34 |
| RSLPPIParametersProvisioning | 5.37 | RSLPPI Parameters Provisioning API | TS29522\_RSLPPIParametersProvisioning.yaml | 3gpp-rslppi-pp | A.35 |
| RetrieveInfoUAVFlight | 5.39 | RetrieveInfoUAVFlight API | TS29522\_RetrieveInfoUAVFlight.yaml | 3gpp-retrieve-uav-flight | A.37 |

\*\*\* 2nd Change \*\*\*

## 5.39 RetrieveInfoUAVFlight API

### 5.39.1 Introduction

The Nnef\_RetrieveInfoUAVFlight service shall use the RetrieveInfoUAVFlight API.

The API URI of RetrieveInfoUAVFlight API shall be:

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

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 5.2.4 of 3GPP TS 29.122 [4], i.e.:

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

with the following components:

- "apiRoot" is set as described in clause 5.2.4 in 3GPP TS 29.122 [4].

- "apiName" shall be set to "3gpp-retrieve- uav-flight".

- "apiVersion" shall be set to "v1" for the current version defined in the present document.

- The <apiSpecificSuffixes> shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [4].

All resource URIs in the clauses below are defined relative to the above API URI.

### 5.39.2 Resources

There are no resources defined for this API in this release of the specification.

### 5.39.3 Custom Operations without associated resources

#### 5.39.3.1 Overview

The structure of the custom operation URIs of the RetrieveInfoUAVFlight API is shown in Figure 5.39.3.1-1.



Figure 5.39.3.1-1: Custom operation URI structure of the RetrieveInfoUAVFlight API

Table 5.39.3.1-1 provides an overview of the custom operations and applicable HTTP methods defined for the RetrieveInfoUAVFlight API.

Table 5.39.3.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Custom operation name | Custom operation URI | Mapped HTTP method | Description |
| Retrieve | /retrieve | POST | Enables an USS to request to retrieve UAV Flight information. |

The custom operations shall support the URI variables defined in table 5.39.3.1-2.

Table 5.39.3.1-2: URI variables for this custom operation

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 5.39.1. |
| afId | string | Identifier of the AF. |

#### 5.39.3.2 Operation: Retrieve

##### 5.39.3.2.1 Description

The custom operation allows to retrieve UAV Flight information via the NEF.

##### 5.39.3.2.2 Operation Definition

This operation shall support the request and response data structures and response codes specified in table 5.39.3.2.2-1 and table 5.39.3.2.2-2.

Table 5.39.3.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| RetrieveUAVFlightReq | M | 1 | Contains the parameters to request to retrieve UAV Flight information. |

Table 5.39.3.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| RetrievedUAVFlightInfo | M | 1 | 200 OK | Successful case. The UAV Flight information retrieval request is successfully processed, and the UAV Flight information is 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 of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4] |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. | | | | |

Table 5.39.3.2.2-3: 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 of the resource located in an alternative NEF. |

Table 5.39.3.2.2-4: 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 of the resource located in an alternative NEF. |

### 5.39.4 Notifications

There are no Notifications defined for this API in this release of the specification.

### 5.39.5 Data Model

#### 5.39.5.1 General

This clause specifies the application data model supported by the RetrieveInfoUAVFlight API. Table 5.39.5.1-1 specifies the data types defined for the RetrieveInfoUAVFlight API.

Table 5.39.5.1-1: RetrieveInfoUAVFlight service specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| CandidateFlightPathInfo | 5.39.5.2.3 | Represents the andidate Flight Path information. |  |
| RetrievedUAVFlightInfo | 5.39.5.2.4 | Represents the retrieved UAF Flight information. |  |
| RetrievePurpose | 5.39.5.3.3 | Represents the purpose of the retrieved information. |  |
| RetrieveUAVFlightReq | 5.39.5.2.2 | Represents the parameters to request the UAV Flight information. |  |

Table 5.39.5.1-2 specifies data types re-used by the RetrieveInfoUAVFlight API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the RetrieveInfoUAVFlight API.

Table 5.39.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Gpsi | 3GPP TS 29.571 [8] | Represents a GPSI. |  |
| LocationArea5G | 3GPP TS 29.122 [4] | Represents location area information. |  |
| SingleFlightPath | 5.38.5.2.3 | Represents the single flight path. |  |
| SupportedFeatures | 3GPP TS 29.571 [8] | Represents the list of supported feature(s) and is used to negotiate the applicability of the optional features. |  |
| UAVFlightAssistNotif | 5.38.5.2.5 | Represents the UAV Flight Notification Information |  |
| Uinteger | 3GPP TS 29.571 [8] | Represents an unsigned integer. |  |

#### 5.39.5.2 Structured data types

##### 5.39.5.2.1 Introduction

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

##### 5.39.5.2.2 Type: RetrieveUAVFlightReq

Table 5.39.5.2.2-1: Definition of type RetrieveUAVFlightReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| gpsi | Gpsi | M | 1 | Contains the target GPSI. |  |
| retrievePurpose | RetrievePurpose | M | 1 | Contains the purpose of the retrieved information. |  |
| targetUssList | array(string) | O | 1..N | Contains the list of suitable target USSes. |  |
| canFltPathInfos | array(CandidateFlightPathInfo) | O | 1..N | Contains a list of candidate Flight Path information. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features used as defined in clause 5.39.6.  This attribute shall be present only when feature negotiation needs to take place. |  |

##### 5.39.5.2.3 CandidateFlightPathInfo

Table 5.39.5.2.3-1: Definition of type CandidateFlightPathInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| borderCrssPnt | LocationArea5G | O | 0..1 | Represents the candidate border-crossing point. |  |
| canFlightPath | SingleFlightPath | O | 0..1 | Represents a candicate flight path. |  |

Editor’s Note: The acceptable deviation and flight path requirement are not specified FFS depends on SA2.

##### 5.39.5.2.4 Type: RetrievedUAVFlightInfo

Table 5.39.5.2.4-1: Definition of type RetrievedUAVFlightInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| retrievedResults | array(UAVFlightAssistNotif) | M | 1..N | Contains the retrieved results of UAV Flight information. |  |

#### 5.39.5.3 Simple data types and enumerations

##### 5.39.5.3.1 Introduction

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

##### 5.39.5.3.2 Simple data types

The simple data types defined in table 5.39.5.3.2-1 shall be supported.

Table 5.39.5.3.2-1: Simple data types

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

##### 5.39.5.3.3 Enumeration: RetrievePurpose

Table 5.39.5.3.3-1: Enumeration RetrievePurpose

The enumeration RetrievePurpose represents the the purpose of the retrieved information.

|  |  |
| --- | --- |
| Enumeration value | Description |
| USS\_CHANGEOVER | Indicates the purpose of the retrieved information is for USS changeover. |
| PRE\_FLIGHT\_PLANNING | Indicates the purpose of the retrieved information is for pre-flight planning. |

#### 5.39.5.4 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.

### 5.39.6 Used Features

The optional features listed in table 5.39.6-1 are defined for the RetrieveInfoUAVFlight API. They shall be negotiated using the extensibility mechanism defined in clause 5.2.7 of 3GPP TS 29.122 [4].

Table 5.39.6-1: Features used by RetrieveInfoUAVFlight API

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

### 5.39.7 Error handling

#### 5.39.7.1 General

For the RetrieveInfoUAVFlight API, HTTP error responses shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [4]. Protocol errors and application errors specified in clause 5.2.6 of 3GPP TS 29.122 [4] shall be supported for the HTTP status codes specified in table 5.2.6-1 of 3GPP TS 29.122 [4].

In addition, the requirements in the following clauses are applicable for the RetrieveInfoUAVFlight API.

#### 5.39.7.2 Protocol Errors

In this Release of the specification, there are no additional protocol errors applicable for the RetrieveInfoUAVFlight API.

#### 5.39.7.3 Application Errors

The application errors defined for the RetrieveInfoUAVFlight API are listed in table 5.39.7.3-1.

Table 5.39.7.3-1: Application errors

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

\*\*\* End of Changes \*\*\*