**3GPP TSG-CT3 Meeting #141 *C3-252274***

**Bratislava, Slovakia, 19th – 23rd May, 2025 (revision of C3-252abc)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.575** | **CR** | **0112** | **rev** | **-** | **Current version:** | **19.2.0** |  |
|  | | | | | | | | |
| *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:*** | Corrections to the ML model Sotrage service description | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNetAE19 | | | | |  | ***Date:*** | | | 2025-04-31 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | * The "allowConsumerList" attribute introduced by the "EnModelMgmt" feature is missing in the ML model Sotrage service description. * There is no "modelUniqueId" attribute contained in the POST for removal of stored ML model(s) using unique ML model identifier. | | | | | | | | |
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| ***Summary of change:*** | | * Enhance the ML model Sotrage service description to include the "allowConsumerList" attribute and update the format of the description. * Remove the "modelUniqueId" attribute from clause 4.3.2.4.3. | | | | | | | | |
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| ***Consequences if not approved:*** | | Misalignment between the service description and the data model. | | | | | | | | |
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| ***Clauses affected:*** | | 4.3.2.2.2, 4.3.2.2.3, 4.3.2.4.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***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:*** | |  | | | | | | | | |

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

##### 4.3.2.2.2 Request Storage of ML model(s)

Figure 4.3.2.2.2-1 shows a scenario where the NF service consumer sends a request to the ADRF to store ML model(s).



Figure 4.3.2.2.2-1: NF service consumer requesting to store ML model(s)

The NF service consumer shall invoke the Nadrf\_MLModelManagement\_StorageRequest service operation to store ML model(s). The NF service consumer shall send an HTTP POST request with "{apiRoot}/nadrf-mlmodelmanagement/<apiVersion>/mlmodel-store-records" as Resource URI representing the "ADRF ML Model Store Records" resource, as shown in figure 4.3.2.2.2-1, step 1, to create an "Individual ADRF ML Model Store Record" according to the information in the NadrfMLModelStoreRecord data structure provided in the request body as described in clause 5.2.3.2.3.1 and clause 5.2.6.2.2.

Upon the reception of an HTTP POST request with "{apiRoot}/nadrf-mlmodelmanagement/<apiVersion>/mlmodel-store-records" as Resource URI and NadrfMLModelStoreRecord data structure as request body, the ADRF shall:

- create a new ML model store record;

- assign a storeTransId;

- download the ML model(s) if needed; and

- store the ML model(s).

NOTE 1: If the ML model(s) are already stored or being stored in the ADRF, the ADRF will still create a new "Individual ADRF ML Model Store Record" resource and assign a new storeTransId if the ADRF intends to not really store the ML model(s) in the memory again based on the implementation.

If the ADRF created an "Individual ADRF ML Model Store Record" resource, the ADRF shall respond with "201 Created" with the message body containing a representation of the created ML model record, as shown in figure 4.3.2.2.2-1, step 2. If the storage of the ML models provided in the "mlModelInfo" attribute or "mlModels" attribute of the request partially failed, the ADRF may include information about the models that failed to be stored within the "modelStoreResult" attribute in the response. The ADRF shall include a Location HTTP header field, which shall contain the URI of the created record i.e. "{apiRoot}/nadrf- mlmodelmanagement/<apiVersion>/mlmodel-store-records/{storeTransId}".

If the storage of all the ML models provided in the "mlModelInfo" attribute or "mlModels" attribute of the request failed for the same reason, then:

- if the ML model file address(es) was/were not found, the ADRF shall send an HTTP "404 Not Found" status code with the response body containing a ProblemDetails data structure with the "cause" attribute including the "ML\_MODEL\_FILE\_ADDRESS\_NOT\_FOUND" application error response as specified in clause 5.2.7; or

- if the ML model file(s) download failed, the ADRF shall send an HTTP "500 Internal Server Error" status code with the response body containing a ProblemDetails data structure with the "cause" attribute including the "ML\_MODEL\_FILE\_DOWNLOAD\_FAILED" application error response as specified in clause 5.2.7.

If an error occurs when processing the HTTP POST request, the ADRF shall send an HTTP error response as specified in clause 5.2.7.

\*\*\* Next Change \*\*\*

##### 4.3.2.2.3 Update Storage of ML model(s)

Figure 4.3.2.2.3-1 shows a scenario where the NF service consumer sends a request to the ADRF to update ML model(s).



Figure 4.3.2.2.3-1: NF service consumer requesting to update ML model(s)

The NF service consumer shall invoke the Nadrf\_MLModelManagement\_StorageRequest service operation to update ML model(s). The NF service consumer shall send an HTTP PUT request with "{apiRoot}/nadrf-mlmodelmanagement/<apiVersion>/mlmodel-store-records/{storeTransId}" as Resource URI representing an "Individual ADRF ML Model Store Record" resource, as shown in figure 4.3.2.2.3-1, step 1, to update that resource according to the information in the NadrfMLModelStoreRecord data structure provided in the request body as described in clause 5.2.3.3.3.2 and clause 5.2.6.2.2.

Upon the reception of an HTTP PUT request with "{apiRoot}/nadrf-mlmodelmanagement/<apiVersion>/mlmodel-store-records/{storeTransId}" as Resource URI and NadrfMLModelStoreRecord data structure as request body, the ADRF shall:

- download the ML model(s) if needed;

- update the ML model store record;

and shall respond with:

a) HTTP "200 OK" status code with the message body containing a representation of updated ML model record, as shown in figure 4.3.2.2.3-1, step 2a. or

b) HTTP "204 No Content" status code, as shown in figure 4.3.2.2.3-1, step 2b.

If an error occurs when processing the HTTP PUT request, the ADRF shall send an HTTP error response as specified in clause 5.2.7.

If the ADRF determines the received HTTP PUT request needs to be redirected, the ADRF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

\*\*\* Next Change \*\*\*

##### 4.3.2.4.3 Requesting removal of stored ML model(s) using unique ML model identifier

Figure 4.3.2.4.3-1 shows a scenario where the NF service consumer sends a request to the ADRF to delete stored ML model(s) based on the unique ML model identifier.



Figure 4.3.2.4.3-1: NF service consumer requesting to remove stored ML model(s)

The NF service consumer shall invoke the Nadrf\_MLModelManagement\_Delete service operation to remove stored ML model(s) based on the unique ML model identifier. The NF service consumer shall send an HTTP POST request with "{apiRoot}/nadrf-mlmodelmanagement/<apiVersion>/remove-stored-mlmodel" as URI, as shown in figure 4.3.2.4.3-1, step 1. The POST request body shall contain the list of ML model identifiers of the ML models that are to be deleted as described in clause 5.2.4.4.

Upon the reception of an HTTP POST request with "{apiRoot}/nadrf-mlmodelmanagement/<apiVersion>/remove-stored-mlmodel" as URI, if the ADRF successfully processed and accepted the received HTTP POST request, the ADRF shall remove any stored ML model(s) that match the unique ML model identifier(s) received in the request and respond with HTTP "204 No Content" status if all deletions were successful or with HTTP "200 OK" status with the message body containing the MLModelDelResult data structure if the deletion was partially successful.

If the deletion of all the ML models identified by the unique ML model identifier inthe request failed for the same reason, then:

- if the ML model(s) was/were not found the ADRF shall send an HTTP "404 Not Found" status code with the response body containing a ProblemDetails data structure with the "cause" attribute including the "ML\_MODEL\_NOT\_FOUND" application error response as specified in clause 5.2.7; or

- if the ML model(s) was/were found but not deleted the ADRF shall send an HTTP "500 Internal Server Error" status code with the response body containing a ProblemDetails data structure with the "cause" attribute including the "ML\_MODEL\_FOUND\_BUT\_NOT\_DELETED" application error response as specified in clause 5.2.7.

If errors occur when processing the HTTP POST request, the ADRF shall send an HTTP error response as specified in clause 5.2.7.

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