**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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| *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 | **X** | Core Network | **X** |

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| ***Title:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** | S5 |
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| ***Work item code:*** | eMDAS |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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 canbe 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)* |
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| ***Reason for change:*** | Solution for use case “ML entity selection” and its requirements have not been specified in Rel-18 and therefore this contribution proposed the correct it.  |
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| ***Summary of change:*** | This contribution proposes to correct clause 6.2a.1.2.3 VOID REQ-ML\_SELECT-01 and REQ-ML\_SELECT-03 due to lack of solution for Model complexity  |
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| ***Consequences if not approved:*** | leads to incorrect implementation. |
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| ***Clauses affected:*** | 6.2a.1.2.3 and 6.2a.1.3 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **Start of modification** |

##### 6.2a.1.2.3 ML entity selection

For a given machine learning-based use case, different entities or AI/ML inference function may have different requirements. For example, one consumer may wish to have an ML entity trained for city central business district where mobile users move at speeds not exceeding 30 km/hr, while another consumer, for the same use case may support a rural environment and may wish to have an ML entity supporting that type of environment. The different consumers need to know the available versions of ML entities, and select the appropriate one.

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| **Next modification** |

#### 6.2a.1.3 Requirements for ML training

Table 6.2a.1.3-1

| Requirement label | Description | Related use case(s) |
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| **REQ-ML\_TRAIN-FUN-01** | The ML training MnS producer shall have a capability allowing an authorized ML training MnS consumer to request ML training. | ML training requested by consumer (clause 6.2a.1.2.1) |
| **REQ- ML\_TRAIN-FUN-02** | The ML training MnS producer shall have a capability allowing the authorized ML training MnS consumer to specify the data sources containing the candidate training data for ML training. | ML training requested by consumer (clause 6.2a.1.2.1) |
| **REQ- ML\_TRAIN-FUN-03** | The ML training MnS producer shall have a capability allowing the authorized ML training MnS consumer to specify the inference type of the ML entity to be trained. | ML training requested by consumer (clause 6.2a.1.2.1) |
| **REQ- ML\_TRAIN-FUN-04** | The ML training MnS producer shall have a capability to provide the training result to the ML training MnS consumer. | ML training requested by consumer (clause 6.2a.1.2.1), ML training initiated by producer (clause 6.2a.1.2.2) |
| **REQ- ML\_TRAIN-FUN-05** | The ML training MnS producer shall have a capability allowing an authorized ML training MnS consumer to configure the thresholds of the performance measurements and/or KPIs to trigger the re-training of an ML entity. (See Note) | ML training initiated by producer (clause 6.2a.1.2.2) |
| **REQ- ML\_TRAIN-FUN-06** | The ML training MnS producer shall have a capability to provide the version number of the ML entity and the time when it is generated by ML re-training to the authorized ML training MnS consumer. | ML training requested by consumer (clause 6.2a.1.2.1), /ML training initiated by producer (clause 6.2a.1.2.2) |
| **REQ- ML\_TRAIN-FUN-07** | The ML training MnS producer shall have a capability allowing an authorized ML training MnS consumer to manage the training process, including starting, suspending, or resuming the training process, and configuring the ML context for ML training. | ML training requested by consumer (clause 6.2a.1.2.1), ML training initiated by producer (clause 6.2a.1.2.2), ML entity joint training (clause 6.2a.1.2.6) |
| **REQ- ML\_TRAIN-FUN-08** | The ML training MnS producer should have a capability to provide the grouping of ML entities to an authorized ML training MnS consumer to enable coordinated inference. | ML entity joint training (clause 6.2a.1.2.6) |
| **REQ- ML\_TRAIN-FUN-09** | The ML training MnS producer should have a capability to allow an authorized ML training MnS consumer to request joint training of a group of ML entities. | ML entity joint training (clause 6.2a.1.2.6) |
| **REQ- ML\_TRAIN-FUN-10** | The ML training MnS producer should have a capability to jointly train a group of ML entities and provide the training results to an authorized consumer. | ML entity joint training (clause 6.2a.1.2.6) |
| **REQ-ML\_SELECT-01** | Void | Void |
| **REQ-ML\_SELECT-02** | 3GPP management system shall have a capability to enable an authorized ML training MnS consumer to select an ML entity to be used for inference. | ML models and ML entity selection (clause 6.2a.1.2.3) |
| **REQ-ML\_SELECT-03** | Void | Void |
| **REQ-ML\_SELECT-04** | The 3GPP management system shall have a capability to provide a selected ML entity to the authorized ML training MnS consumer. | ML model and ML entity selection (clause 6.2a.1.2.3) |
| **REQ-ML\_TRAIN- MGT-01** | The ML training MnS producer shall have a capability allowing an authorized consumer to manage and configure one or more requests for the specific ML training, e.g. to modify the request or to delete the request.  | ML training requested by consumer (clause 6.2a.2.1), Managing ML Training Processes (clause 6.2a.1.2.4) |
| **REQ-ML\_TRAIN- MGT-02** | The ML training MnS producer shall have a capability allowing an authorized ML training MnS consumer to manage and configure one or more training processes, e.g. to start, suspend or restart the training. | ML training requested by consumer (clause 6.2a.1.2.1),Managing ML training processes (clause 6.2a.1.2.4) |
| **REQ-ML\_TRAIN- MGT-03** | 3GPP management system shall have a capability to enable an authorized ML training MnS consumer (e.g. the function/entity different from the function that generated a request for ML training) to request for a report on the outcomes of a specific training instance. | Managing ML training processes (clause 6.2a.1.2.4) |
| **REQ-ML\_TRAIN- MGT-04** | 3GPP management system shall have a capability to enable an authorized ML training MnS consumer to define the reporting characteristics related to a specific training request or training instance. | Managing ML training processes (clause 6.2a.1.2.4) |
| **REQ-ML\_TRAIN- MGT-05** | 3GPP management system shall have a capability to enable the ML training function to report to any authorized ML training MnS consumer about specific ML training process and/or report about the outcomes of any such ML training process. | Managing ML training processes (clause 6.2a.1.2.4) |
| **REQ-ML\_ERROR-01** | The 3GPP management system shall enable an authorized consumer of data services (e.g. an ML training function) to request from a producer of data services a Value Quality Score of the data, which is the numerical value that represents the dependability/quality of a given observation and measurement type. | Handling errors in data and ML decisions (clause 6.2a.1.2.5) |
| **REQ-ML\_ERROR-02** | The 3GPP management system shall enable an authorized consumer of AI/ML decisions (e.g. a controller) to request ML decision confidence score which is the numerical value that represents the dependability/quality of a given decision generated by an AI/ML inference function. | Handling errors in data and ML decisions (clause 6.2a.1.2.5) |
| **REQ-ML\_ERROR-03** | The 3GPP management system shall enable a producer of data services (e.g. a gNB) to provide to an authorized consumer (e.g. an ML training function) a Value Quality Score of the data, which is the numerical value that represents the dependability/quality of a given observation and measurement type. | Handling errors in data and ML decisions (clause 6.2a.1.2.5) |
| **REQ-ML\_ERROR-04** | The 3GPP management system shall enable a producer of ML decisions (e.g. an AI/ML inference function) to provide to an authorized consumer of ML decisions (e.g. a controller) an AI/ML decision confidence score which is the numerical value that represents the dependability/quality of a given decision generated by the AI/ML inference function. | Handling errors in data and ML decisions (clause 6.2a.1.2.5) |
| **REQ-ML\_VLD-01** | The ML training MnS producer should have a capability to validate the ML entities during the ML training process and report the performance of the ML entities on both the training data and validation data to the authorized consumer. | ML entity validation performance reporting (clause 6.2a.1.2.7) |
| **REQ-ML\_VLD-02** | The ML training MnS producer should have a capability to report the ratio (in terms of quantity of data samples) of the training data and validation data used during the ML training and validation process. | ML entity validation performance reporting (clause 6.2a.1.2.7) |
| **REQ-TRAIN\_EFF-01** | The 3GPP management system should have the capability to allow an authorized consumer to configure an ML training function to report the effectiveness of data used for model training.  | Training data effectiveness reporting (clause 6.2a.1.2.8) |
| NOTE: The performance measurements and KPIs are specific to each type (i.e., the inference type that the ML entity supports) of ML entity. |

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| **End of modification** |