**3GPP TSG-SA5 Meeting #158 *S5-247239***

Orlando, USA, 18 - 22 November 2024

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.105** | **CR** | **0214** | **rev** | **1** | **Current version:** | **19.0.0** |  |
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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:*** | Rel 19 CR TS 28.105 Corrections for aiml inference history | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | SA5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AIML\_MGT | | | | |  | ***Date:*** | | | 2024-10-31 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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)* | |
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| ***Reason for change:*** | | The clause 6.5.5 is named “Executing AI/ML Inference”. The clause name is mis-leading as it only details the use case on AI/ML Inference History. It details the requesting and reporting of inference history and nothing about “Executing AI/ML Inference”.  Execution of Inference could be confused with activation and there are no details of how inference is executed.  The figure 6.5.5.2.1-1 describes behaviour for requesting and reporting ML inference history, however there is no solution for this in the spec and therefore should be removed. | | | | | | | | |
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| ***Summary of change:*** | | Clause 6.5.5 is updated from “Executing AI/ML Inference” to “AI/ML Inference History”  Clause 6.5.5.3 is updated from “Requirements for Executing AI/ML Inference” to “Requirements for AI/ML Inference History.  Editorial correction in the requirement 2  Figure 6.5.5.2.1-1 removed. | | | | | | | | |
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| ***Consequences if not approved:*** | | The clause name does not accurately reflect the use cases in the clause. Figure suggesting functionality that does not exist in the specification. | | | | | | | | |
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| ***Clauses affected:*** | | 6.5.5 | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st Change** |

### 6.5.5 AI/ML Inference History

#### 6.5.5.1 Description

Different functionalities in the network or management domains may utilize AI/ML inference techniques to conduct their tasks under different contexts. Depending on the contexts, the outcome of the ML model at inference might be different. The history of such inference outcome and the corresponding context within which they were taken may be of interest to different consumers.

#### 6.5.5.2 Use cases

##### 6.5.5.2.1 AI/ML Inference History - tracking inferences and context

For different automation requirements in specific network domain, management/automation functions (e.g., MDAS, SON) may apply ML functionality to make the appropriate inferences in different contexts. The context is the set of appropriate conditions under which the inference was made including network conditions, traffic characteristics, time of day, weather, and climate, etc. And depending on the contexts, the different inferences may have different outcomes. The inference history, which is the history of such inferences and the contexts within which they are taken, may be of interest to different consumers. The AI/ML inference history includes outputs derived by the ML model and the contexts, e.g., network resources, time periods, traffic conditions, etc. The inference history output should be reported by the MnS Producer to the MnS Consumer.

The inferences may need to be tracked for future reference, e.g., to evaluate the appropriateness/usefullness of the inference outcome for those contexts or to evaluate degradations in the ML model's performance. For this, the network not only needs to have the required inference capabilities but needs also to have the means to track and enable usage of the history of the inferences made by the ML model. The MnS producer, i.e., a specific AI/ML inference function should also provide the capability for AI/ML inference history Control, the means to control the process of compiling and reporting on AI/ML inference history.

ML Inference History Control

MLModel

Request ML Inference History

Report on ML Inference History

**ML MnS Producer (provides Inference History )**

**MnS Consumer**

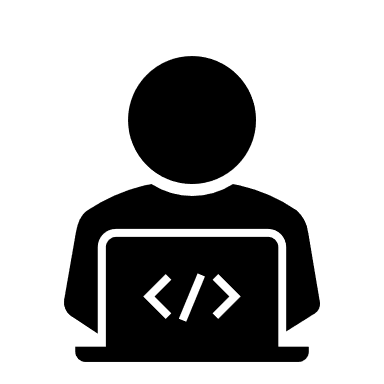


Figure 6.5.5.2.1-1: Example use and control of AI/ML inference history request and reporting.

#### 6.5.5.3 Requirements for AI/ML Inference History

Table 6.5.5.3-1

| Requirement label | Description | Related use case(s) |
| --- | --- | --- |
| **REQ-AI/ML\_INF-HIST-01** | The MnS producer for AI/ML inference management should have a capability allowing an authorized consumer to receive the inference history of a specific ML model. | AI/ML Inference History - tracking inferences and context (clause 6.5.5.2.1) |
| **REQ-AI/ML-INF-HIST-02** | The MnS producer for AI/ML inference management should have a capability enabling an authorized consumer to define the reporting characteristics of historical inference outputs related to a specific instance of an ML model. | AI/ML Inference History - tracking inferences and context (clause 6.5.5.2.1) |

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| **End of changes** |