**3GPP TSG-SA5 Meeting #137-e *S5-xxxxxx***

**Online, , 10th May 2021 - 19th May 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **28.537** | **CR** | **DraftCR** | **rev** | **-** | **Current version:** | **16.0.0** |  |
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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-17 CR 28.537 Add requirements for data management |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | SA5 |
|  |  |
| ***Work item code:*** | MADCOL |  | ***Date:*** | 2021-05-21 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | 17 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | Add two requirements for data management. |
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| ***Summary of change:*** |  |
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| ***Consequences if not approved:*** |  |
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| ***Clauses affected:*** | X (new) |
|  |  |
|  | **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:*** | **Input to DraftCR for TS 28.537 related to WI MADCOL** |
|  |  |
| ***This CR's revision history:*** |  |

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| **First modification** |

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 28.532: "Management and orchestration; Generic management services".

[x] 3GPP TS 28.552: "Management and orchestration; 5G performance measurements".

[y] 3GPP TS 28.554: "Management and orchestration; 5G end to end Key Performance Indicators (KPI)".

[z] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".

[a] IETF RFC 6838 " Media Type Specifications and Registration Procedures".

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| **Next modification** |

# X Managing management data

## X.1 Producing and reporting management data

### X.1.1 Description

Management data is referring to data produced by radio access network functions, core network functions or management functions and used for management purposes. Management data specified by 3GPP for 5G management is classified into 5G performance measurements as defined by TS 28.552 [x], 5G end to end key performance indicators as defined by TS 28.554 [y] and Trace/MDT data as defined by TS 32.422 [z]. The combined performance measurements and key performance indicators are also called performance metrics.

Management data is produced on request. Therefore, the 3GPP management system needs to enable a data consumer to request management data to be produced. The data requestor must specify the type of data to be produced as well as the radio access network functions, core network functions and management functions where the data shall be produced. The target managed object instances can be identified in multiple ways:

* The requestor can specify the target managed object instances based on the managed object tree (as defined in the SA5 Network Resource Models) representing the network and management functions. The simplest approach is to directly identify the managed object instances where data shall be produced. More sophisticated approaches allow to specify one or more subtrees, where data shall be produced, and may include as well specifying managed object classes to select only object instances of specific classes.
* The requestor can specify a geographical area. Geographical areas can be expressed for example with multiple longitude/latitude pairs that define a polygon. The system needs to translate this information into the target managed object instances representing network functions that provide support for the geographical area of interest. In the radio domain this mapping requires relating the coverage area of cells supported by a base station to the geographical area of interest.

After production the data needs to be reported to the data consumers. Reporting can be based on multiple reporting methods such as file or streaming. Data reporting needs to be requested by the data consumer. The requestor must specify the control parameters for reporting such as the reporting method and the address the data shall be delivered to.

Depending on access rights and security settings, data consumers may be subject to restrictions regarding the data they can access.

### X.1.2 Requirements

REQ-MDMPR-1: The 3GPP management system shall enable an authorized data consumer to request management data specified by 3GPP to be produced.

REQ-MDMPR-2: The 3GPP management system shall enable an authorized data consumer to request management data specified by 3GPP to be produced for a certain geographical area.

REQ-MDMPR-: The 3GPP management system shall enable an authorized data consumer to request management data specified by 3GPP to be reported to the requesting or any other authorized data consumer.

Note: The term "management data specified by 3GPP" relates to

* 5G performance measurements as defined by TS 28.552 [x]
* 5G end to end key performance indicators as defined by TS 28.554 [y], and
* Trace/MDT data as defined by TS 32.422 [z].

## X.2 Coordinating management data production

### X.2.1 Description

Many consumers can request network or management functions to produce management data. In this context it is beneficial to coordinate data requests at the management level to optimize management data production.

### X.2 Requirements

REQ-MDMC-CON-1: The 3GPP management system shall coordinate requests from several data consumers to avoid producing multiple times the same data at a certain point of time.

*Editor's note: It is tbc what exactly is "same data".*

## X.3 Storing management data

### X.3.1 Description

Storing management data enables reusage of management data for multiple management purposes.

For example, AI/ML models need input data collected over a certain period of time for training purposes. A specific set of collected data may serve different purposes and can therefore be input to multiple AI/ML services. For example, management data collected in a geographical area may be used also for another geographical area when the scenarios in the areas are statistically similar.

Another use case for storing produced data is related to the fact that multiple sets of training data from similar scenarios are typically required. For example, one set of data produced for the rush hour in a subway station on a single weekday is typically not enough for profiling. Many sets produced on many workdays are required.

Stored data is useful when management functions can discover which data has been produced and stored in the past to check if the currently needed data is already available.

### X.3.2 Requirements

REQ-MDMS-1: The 3GPP management system shall support the storing of produced management data.

REQ-MDMS-2: The 3GPP management system shall enable an authorized data consumer to discover stored management data.

REQ-MDMS-3: The 3GPP management system shall enable an authorized data consumer to retrieve stored management data.

REQ-MDMS-4: The 3GPP management system shall support automatic registration of management data, that is added to a data store, with the data discovery function.

REQ-MDMS-5: The 3GPP management system shall support automatic deregistration of management data, that is removed from a data store, from the data discovery function.

REQ-MDMS-6: Management data stored in a data store shall be described by a set of meta-data.

## X.4 Managing external management data

### X.4.1 Description

Management data which is specified by 3GPP (clause X.1.1) can be enriched by additional data not specified by 3GPP. This so-called external management data can be produced by data sources of different nature (e.g. sensors) with different formats.

External management data can be used for example as additional input for network optimization and prediction.

The management system should be able to manage this kind of data. That means data consumers should be able to request external management data to be produced and reported. The management system should provide support for storing it.

The definition of external data sources and the data formats they use is out of scope of this specification.

The target is to define generic management mechanisms that can cope with any kind of external data sources and data formats.

When the management system receives external management data, it should try to create meta data describing the received data. Meta data may include the media type (RFC 6838 [a]) of the received data, the time when the data was created and a geographical area or civic address the data relates to. An indication as to what the data should be used for (data purpose) may be added as well. In a second step, the meta data needs to be associated to the received external management data,

In addition, the management system should try to associate the received external data (incl. its attached meta data) to existing object instances in the information model of the management system, thereby establishing a relationship to other data, that is typically related to objects in the information model. For example, pictures or videos taken in the coverage area of a cell can be associated to the object representing the cell. 3GPP defined performance measurements, that are produced for that cell, are related to the cell object as well so that the result is a rich set of data for that cell, that can be used for different management purposes including optimisation and prediction.

### X.4.2 Requirements

REQ-MDMED-1: The 3GPP management system shall enable an authorized data consumer to request external management data to be produced.

REQ-MDMED-2: The 3GPP management system shall enable an authorized data consumer to request external management data to be reported to the requesting or another authorized data consumer.

REQ-MDMED-3: The 3GPP management system shall support the storing of produced external management data.

REQ-MDMED-4: The 3GPP management system shall enable an authorized data consumer to discover stored external management data.

REQ-MDMED-5: The 3GPP management system shall enable an authorized data consumer to retrieve stored external management data.

REQ-MDMED-6: The 3GPP management system shall associate meta data to received external management data.

*Editor's note: Requirements on how the 3GPP management system generates or gets meta data is ffs.*

REQ-MDMED-7: The 3GPP management system shall associate received external management data (incl. its meta data) to object instances in the information model.

Note: The term "external management data" relates to data not specified by 3GPP.

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| **End of modifications** |