**3GPP TSG-SA5 Meeting #155 *S5-243225***

**Jeju, South Korea, 27 - 31 May 2024**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **28.537** | **CR** | **Input to draftCR** | **rev** | **-** | **Current version:** | **18.0.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Rel-19 input to draftCR TS 28.537 Update clause 6.1 Producing and reporting management data to support area based KPI reporting |
|  |  |
| ***Source to WG:*** | Huawei, Deutsche Telekom |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | MADCOL\_ph2 |  | ***Date:*** | 2024-04-01 |
|  |  |  |  |  |
| ***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 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)* |
|  |  |
| ***Reason for change:*** | The ManagementDataCollection IOC is introduced to enable MnS consumer to request management data (including performance measurements, KPI and Trace/MDT data) in a simple way. One of the typical scenarios is MnS consumer specifies the area of interest (including geographical area, list of cells) and management data category ("COVERAGE", "CAPACITY", "MOBILITY", "ENERGY\_EFFICIENCY", "ACCESSIBILITY"). This scenario mainly used for MnS consumers who are unaware of concrete managed objects (e.g. NRCellCU, NRCellDU). However, current reporting data still based on managed objects. So, it proposes to add description and requirements for management data reporting which is not relying on the concrete managed objects based on conclusion and recommendation in TR 28.842. |
|  |  |
| ***Summary of change:*** | Add description and requirements for area based KPI reporting based on TR 28.842. |
|  |  |
| ***Consequences if not approved:*** |  |
|  |  |
| ***Clauses affected:*** | 6.1.1,6.1.3 |
|  |  |
|  | **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's revision history:*** | S5-242442 is the revision of S5-241421 |

|  |
| --- |
| **1st Change** |

# 6 Managing management data

## 6.1 Producing and reporting management data

### 6.1.1 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 [4], 5G end to end key performance indicators as defined by TS 28.554 [5] and Trace/MDT data as defined by TS 32.422 [6]. 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 requester needs to 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 requester can specify the target managed object instances based on the managed object tree (as defined in the 3GPP 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 allow also to specify managed object classes to select only object instances of specific classes.

- The requester can specify one or multiple of the following selection criteria. The system needs to translate this information into the target managed object instances. The selection criteria need to be deterministic in such a way that the target node(s) can be selected unambiguously.

- Area of interest: In a big network, it makes sense to specify a limited area for which data shall be produced. The area of interest can be expressed for example with a geographical area, one or several cells or one or several tracking areas. The target managed object instances represent network functions serving that area of interest. Geographical areas can be expressed for example with multiple longitude-latitude pairs that define a convex polygon. In the radio domain the geographical area needs to be mapped to the coverage area of cells supported by RAN NE(s). The managed object instances (e.g. NRCellCU, GNBDUFunction) providing service to these cells can be identified as target managed object instances. Of course the coverage area of the target cell(s) will usually not exactly map to the described shape of the geographical area because, on the one side, the coverage area of cell has no sharp borders due to fast fading effects, on the other side, the coverage area of cells may vary slightly e.g. due to adaptation of the antenna downtilt angle or beamforming configurations. For the mapping between the geographical area and the corresponding managed object instances the cell coverage status at the time of the request shall be used. Later changes affecting the cell coverage shall not be reflected for the mapping.

- Domain e.g RAN, CN: A consumer might only be interested in analysing and understanding the performance of a particular domain like RAN or Core e.g in case of recurrent issues, a consumer may want to have understanding of a particular domain only for further actions. In such a scenario, it should be possible to indicate the domain from where consumer wants measurements for its usage.

- Traffic type e.g user plane or control plane: 5G brings clear separation (CUPS) of user plane and control plane in a network, a consumer may leverage it to identify target managed object instances to have measurements from. For example, the measurement report may be expected from user plane nodes only.

- Slice type e.g eMBB, URLLC: Consumer may mention a particular slice type (eMBB, URLLC, mIoT, V2X, HMTC) as the selection criteria. It may help in narrowing down the target managed object instances, which are part of provided slice type(s).

This MnS to request management data in a simple way shall not be exposed at any network function.

The management data can be requested according to a certain time scheduler. The consumer can e.g. specify a start and stop time or can request for data at specific days of a week or specific hours of a day..

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 needs to specify the control parameters for reporting such as the reporting method and the address the data shall be delivered to.

A data consumer which is unaware of specific managed objects (e.g. NRCellCU, NRCellDU), is able to obtain the management data without relying on the specific managed objects using area based KPIs (e.g. downlink weak coverage ratio or high DL PRB load ratio for the associated area). An area based KPI is a type of the management data which is not associated to specific managed objects. In this case, data requestor specifies the list of names or categories of the area based KPIs for the interested areas. Based on the request, data producer needs to report the area based KPIs to the data consumer. The area based KPIs can be associated with sub-areas of the interested areas.Depending on access rights and security settings, data consumers may be subject to restrictions regarding the data they can access.

Data is always produced in some context. The data describing this context is called context data. Context data contains information on all interrelated conditions in which the management data is produced. This includes for example the configuration of the measured network functions, information on the network entity where the network function is running such as vendor name or software version, but also alarms associated to the network function or load conditions.

Data consumers processing managemen data in an effort to accomplish some task typically benefit when taking context data into account. For that reason data consumers should be able to obtain the context data for the management data they obtain. However, access to certain management data does not automaticlly imply access to all context data. Access to management data and access to context data may be subject to different data security and data protection considerations.

### 6.1.2 Use cases

This clause describes the benefits of the subject capability.

Editor's note: This clause will be extended with the benefits of the subject capability.

### 6.1.3 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-MDM-PR-2: The 3GPP management system shall enable an authorized data consumer to request management data specified by 3GPP to be produced by certain managed object instance(s) only. The selection criteria to determine the managed object instance(s) shall be deterministic in such a way that the target node(s) can be selected unambiguously. The managed object instances can be targeted based on:

- Area of interest (e.g. list of cells, list of tracking areas or geographical area).

- Domain (CN or RAN).

- User plane or control plane.

- Slice type (e.g. eMBB, URLLC, mIoT, V2X, HMTC).

The MnS to request management data specified by 3GPP in a simple way shall not be exposed at any network function.

The mapping of geographical area to corresponding managed object instances reflects the cell coverage status at the time of the request.

REQ-MDM-PR-3: The 3GPP management system shall enable an authorized data consumer to request management data specified by 3GPP to be produced according to a certain time scheduler.

REQ-MDMPR-CON-4: The 3GPP management system shall enable an authorized data consumer to request management data (specified by 3GPP) to be reported to the requesting or another authorized data consumer.

REQ-MDMPR-5: The 3GPP management system shall enable an authorized data consumer to obtain context data for management data. Access to management data does not imply access to context data. Different data privacy considerations may apply.

REQ-MDMPR-6: The 3GPP management system shall support enabling an authorized data consumer to obtain management data which does not rely on specific managed objects.

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

- 5G performance measurements as defined by TS 28.552 [4]

- 5G end to end key performance indicators as defined by TS 28.554 [5], and

- Trace/MDT data as defined by TS 32.422 [6].

|  |
| --- |
| **End of Changes** |