**3GPP TSG-SA5 Meeting #137-e *S5-213673d1***

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

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  |  | **CR** | **DraftCR** | **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:***  | Rel-17 CR 28.537 Add requirements for data management and file management |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | SA5 |
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| ***Work item code:*** | MADCOL |  | ***Date:*** |  |
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| ***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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | Requirements for "Managing management data" need to be added.Requirements for "File management" need to be added. |
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| ***Summary of change:*** | Requirements for "Managing management data" are added.Requirements for "File management" are added. |
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| ***Consequences if not approved:*** | Requirements for "Managing management data" would be missing.Requirements for "File management" would be missing. |
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| ***Clauses affected:*** | A (new), X (new) |
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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:*** | **DraftCR for TS 28.537 related to WI MADCOL and WI FIMA**The following input CRs are considered:**MADCOL**[SA5#136* S5-212383 Rel-17 Input to DraftCR 28.537 Add management data management requirements (“easy-to-use” data request job)
* S5-212384 Rel-17 Input to DraftCR 28.537 Add management data management requirements
* S5-212385 Rel-17 Input to DraftCR 28.537 Add management data management requirements (pictures and video)

**FIMA**[SA5#136]* S5-212080 Rel-17 Input to DraftCR 28.537 Add requirements for File Management

[SA5#137]* S5-213548 Rel-17 Input to DraftCR 28.537 Add requirements for file upload
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| ***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".

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| **Next modification** |

# A File management

## A.1 File transfer

### A.1.1 Description

File management deals with transferring files between MnS producers and MnS consumers. The file transfer from a MnS producer to a MnS consumer is called file upload, and the file transfer from a MnS consumer to a MnS producer is called file download.

To ensure the receiver of a file has sufficient resources to accept a file, files are never pushed. The entity that will receive the file must initiate the transmission of the file.

Existing file transfer protocols are used. These protocols need to comply to requirements specified in this clause.

### A.1.2 Requirements

REQ-FMG-1: The file transfer protocol shall preserve the formatting of the file during exchange.

REQ-FMG-2: The file transfer protocol shall preserve the encoding of the file during exchange.

REQ-FMG-3: The MnS producer shall support at least one of the following file transfer protocols: SFTP, FTPES, HTTPS.

REQ-FMG-4: The MnS consumer shall use the file transfer protocol supported by the MnS producer.

## A.2 File upload from a MnS producer to a MnS consumer

### A.2.1 Description

A file is not pushed by a MnS producer onto a MnS consumer. Either the MnS consumer uploads a file from the MnS producer because the MnS consumer receives a file ready notification from the MnS producer or the MnS consumer reads the list of available (ready) files on the MnS producer and decides to upload an available file.

### A.2.2 Requirements

REQ-FMU-1: The MnS producer shall support the capability allowing a MnS consumer to upload a file from the MnS producer.

REQ-FMU-2: The MnS producer shall support the capability allowing a MnS consumer to retrieve the list of files available for transfer from the MnS producer.

REQ-FMU-3: The MnS producer shall support the capability to inform a MnS consumer about files that are available for upload.

REQ-FMU-4: The MnS producer shall support the capability to inform a MnS consumer about errors that occurred during the preparation of a file.

REQ-FMU-5: The information transferred to a MnS consumer about an available file shall allow associating the file to the process on the MnS producer that generated the file, if any such process exists and has an identifier.

REQ-FMU-6: The MnS producer shall support the capability allowing the MnS consumer to indicate to a MnS producer, that the MnS consumer does not need a file anymore, such that the MnS producer hides the file in subsequent requests or may decide to deletes it altogether.

## A.3 File download from a MnS consumer to a MnS producer

### A.3.1 Description

For file download, the MnS consumer asks the MnS producer to download a file. The MnS consumer does not push it onto the MnS producer.

### A.3.2 Requirements

REQ-FMD-1: The MnS producer shall support the capability to download a file from a MnS consumer or a designated file server when triggered by a MnS consumer.

REQ-FMD-2: The MnS producer shall support the capability allowing a MnS consumer to trigger the MnS producer to download a file from the MnS consumer or a designated file server.

REQ-FMD-3: The MnS producer shall support the capability to inform the MnS consumer, that has triggered a file download from the MnS consumer or a file server to the MnS producer, about the progress of that file download.

## A.3 Procedures

*Editor's note: Procedues are to be added.*

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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 Resourece 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 specify also managed object classes.
* The requestor can specify a geographical area or a tracking area. The system needs to translate this information into the target managed object instances.

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

REQ-MDMPR-CON-2: 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.

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].

*Editor's note: Functional (FUN) requirements are ffs.*

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

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

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

### X.4.2 Requirements

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

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

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

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

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

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| **End of modifications** |