**3GPP TSG-CT WG1 Meeting #125-eC1-205206**

**Electronic meeting, 20-28 August 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.250** | **CR** | **0025** | **rev** | **1** | **Current version:** | **16.2.0** |  |
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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 | **x** | Radio Access Network |  | Core Network | **x** |

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| ***Title:*** | Updates to Manage Port Command for long Application Identifiers | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Intel | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI16, CIoT\_Ext | | | | |  | ***Date:*** | | | 2020-06-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | MANAGE\_PORT message includes unresolved Editor’s Note as follows:  Editor's note: The handling of case when the information does not fit into the MANAGE\_PORT message is FFS.  It has been indicated that in case of certain OSs the Application Identifiers can be quite long and the information requested for MANAGE\_PORT command in case of Query Port and Notify Port may not fit within the 1520 octets limit of RDS frame.  A solution needs to be provided for above and one approach is to fragment the frame. Another approach may be to provide information only for a limited number of ports in one frame and let the originator or receiver request information for remaining ports in another subsequent command. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The originator explicitly indicates the destination port numbers for which it intends to query information. The receiver indicates if information was included for all destination ports in response, and if not, it indicates the destination port numbers for which information was not included. The originator can then query the information for these ports in a subsequent command. No fragmentation of frames is provided.  For Notify ports as much information that can be included in one frame is sent to the the receiver. The originator indicates port numbers that are reserved for which information was not included. The receiver can query information for these ports using Query Port action. | | | | | | | | |
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| ***Consequences if not approved:*** | | Unresolved Editor's note in specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.4.2.6.1, 5.4.2.6.4, 5.4.2.6.5, 6.2.8.1, 6.2.8.2, 6.2.8.3, 6.2.8.4, 6.2.9.1, 6.2.9.2, 6.2.9.3. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\*\*\*\*\* First change \*\*\*\*\*

##### 5.4.2.6.1 General

The originator and receiver may support the handling specified in subclause 5.4.2.6.

The MANAGE\_PORT command and response is used to manage association of applications with source and destination port numbers between originator and receiver in both acknowledged and unacknowledged mode of transfer. The MANAGE\_PORT command and response can be used to:

- reserve a combination of source and destination port numbers for use with a specific application;

- release a combination of source and destination port numbers that are reserved;

- query the list of port numbers that are reserved for use with a specific application; and

- notify the list of port numbers that are reserved for use with a specific application.

Port number 0 shall not be reserved at the originator or receiver. If an application at the originator communicates with multiple applications at the receiver, then the application may not reserve a port number at destination and shall set the Destination Port to 0. The ADS bit in the U frame header of MANAGE\_PORT command and response is set to 0. Table 5.4.2.6.1-1 lists the parameters used in MANAGE\_PORT command and response frames.

Table 5.4.2.6-1: MANAGE\_PORT parameters

|  |
| --- |
| Action (Bits 1 to 4, octet 1)  This field indicates the operation that the originator or receiver performs as part of MANAGE\_PORT command or response and can have the following values |
| Bits  **4 3 2 1**  0 0 0 1 Reserve port  0 0 1 0 Release port  0 0 1 1 Query port  0 1 0 0 Notify port  All other values are reserved.  Application Id  This field shall be encoded as a sequence of a sixteen octet OS Id field, a one octet OS App Id length field, and an OS App Id field. The OS Id is the operating system Identifier and it contains a UUID as specified in IETF RFC 4122 [3]. The OS App Id field contains an OS specific application identifier of variable length octets. |
|  | |
| Status (octet 2)  This field is used only in the response frame in the direction from the receiver to the originator. It specifies the status of the operation and can have the following values:  Bits 8 7 6 5 4 3 2 1  0 0 0 0 0 0 0 0 Success 0 0 0 0 0 0 0 1 Port not free 0 0 0 0 0 0 1 0 Port not associated with specified application  All other values are reserved.  Requested port numbers  This field indicates the destination port numbers that the originator wants to query and shall be encoded as a bitmap of two octets as indicated below in subclause 5.4.2.6.1a.  Port numbers not available  This field indicates the port numbers that are reserved and for which information is not included in the command or response frame. This field shall be encoded as a bitmap of two octets as indicated in subclause 5.4.2.6.1b. | |
|  | |

##### 5.4.2.6.1a Requested port numbers

The port numbers that are requested are coded in the first and second octet of the Requested port numbers bitmap as follows:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | bit 1 |  |
| Port 7 | Port 6 | Port 5 | Port 4 | Port 3 | Port 2 | Port 1 | Port 0 | Octet 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| bit 16 | 15 | 14 | 13 | 12 | 11 | 10 | bit 9 |  |
| Port 15 | Port 14 | Port 13 | Port 12 | Port 11 | Port 10 | Port 9 | Port 8 | Octet 2 |

A port number is requested, if the corresponding bit is set to "1".

\*\*\* Next change \*\*\*

##### 5.4.2.6.1b Port numbers not available

The port numbers that are not available are coded in the first and second octet of the Port numbers not available bitmap as follows:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | bit 1 |  |
| Port 7 | Port 6 | Port 5 | Port 4 | Port 3 | Port 2 | Port 1 | Port 0 | Octet 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| bit 16 | 15 | 14 | 13 | 12 | 11 | 10 | bit 9 |  |
| Port 15 | Port 14 | Port 13 | Port 12 | Port 11 | Port 10 | Port 9 | Port 8 | Octet 2 |

A port number is not available, if the corresponding bit is set to "1".

\*\*\* Next change \*\*\*

##### 5.4.2.6.4 Query port numbers

If the originator wants to query the destination port numbers that are reserved, the originator shall send a MANAGE\_PORT command as shown in figure 5.4.2.6.4-1 by setting the Action field to "Query port" and indicating the destination port numbers that it intends to query in the optional Requested port numbers. If the originator intends to query all the port numbers, then it shall not include the Requested port numbers.



Figure 5.4.2.6.4-1: MANAGE\_PORT command field format for Action "Query port"

The receiver shall send a MANAGE\_PORT response as shown in figure 5.4.2.6.4-2, by setting the Action field in response frame to "Query port". For each destination port included in the Requested port numbers in the MANAGE\_PORT command that is reserved on the receiver and is associated with an application, the receiver shall include an entry in the MANAGE\_PORT response. The receiver shall set the Num Entries field in the MANAGE\_PORT response to the number of destination ports entries that are included in the MANAGE\_PORT response. For each destination port entry, the receiver shall include the Source Port number that the destination port is paired with and the associated Application ID. If the receiver does not have any reserved source port number for the associated Application ID, the Source Port number shall be set to 0. In the case that the entries for all the destination port numbers requested by the originator do not fit in the MANAGE\_PORT response, the receiver shall include as many entries for destination port numbers as possible in the MANAGE\_PORT response. For all the destination port numbers that are reserved on the receiver, for which the originator has requested information in Requested port numbers in the MANAGE\_PORT command and for which information cannot be included in the MANAGE\_PORT response, the receiver shall set the corresponding entry in the optional Port numbers not available bitmap. The originator can subsequently query information on these destination port numbers by sending another MANAGE\_PORT command and setting Requested port numbers to Port numbers not available in the received MANAGE\_PORT response. If the entries for all the destination port numbers requested by the originator fit in the MANAGE\_PORT response, the receiver shall not include the optional Port numbers not available.



Figure 5.4.2.6.4-2: MANAGE\_PORT response field format for Action "Query port"

\*\*\* Next change \*\*\*

##### 5.4.2.6.5 Notify port numbers

If the originator wants to notify the receiver of the source port numbers that are reserved at the originator, the originator shall send a MANAGE\_PORT command as shown in figure 5.4.2.6.5-1 by setting the Action field to "Notify port".

For each source port that is reserved on the originator and is associated with an application, the originator shall include an entry in the MANAGE\_PORT command. The originator shall set the Num Entries field in the MANAGE\_PORT command to the number of source ports entries that are included in the MANAGE\_PORT response. For each source port that is reserved, the originator shall include the Destination Port number that the source port is paired with and the associated Application ID. If the originator does not have any reserved destination port number for the associated Application ID, the Destination Port number shall be set to 0.

In the case that the entries for all the source port numbers do not fit in the MANAGE\_PORT command, the originator shall include as many entries on source port numbers as possible in the MANAGE\_PORT command. For all the source port numbers that are reserved on the originator and for which information cannot be included in the MANAGE\_PORT command, the originator shall set the corresponding entry in the optional Port numbers not available bitmap. The receiver can subsequently query information on these source port numbers by sending another MANAGE\_PORT command by setting the Action field to "Query port" and setting Requested port numbers to Port numbers not available in the received MANAGE\_PORT command. If the entries for all the source port numbers fit in the MANAGE\_PORT command, the originator shall not include the Port numbers not available.



Figure 5.4.2.6.5-1: MANAGE\_PORT command field format for Action "Notify port"

There is no response frame sent by receiver when it receives the MANAGE\_PORT command with Action field set to "Notify port".

\*\*\* Next change \*\*\*

#### 6.2.8.1 General

The originator and the receiver use the query port number procedure if they support the handling as specified in subclause 5.4.2.6. The purpose of the query port numbers procedure is for the originator to query the list of port numbers that are reserved for use with a specific application. All frames other than U and UI frames received during the query port numbers procedure shall be ignored. It is optional for the receiver to support the query port number functionality.

\*\*\* Next change \*\*\*

#### 6.2.8.2 Query port numbers procedure initiation

The originator shall initiate the query port numbers procedure when upper layers indicate the need to determine any port numbers on receiver that are available for use with an application.

The originator initiates the query port numbers procedure by transmitting a MANAGE\_PORT command to the receiver by setting the Action field to "Query port" and setting Requested port numbers to the destination port numbers that it intends to query. If the originator intends to query all the port numbers, then it shall not include the Requested port numbers. The originator shall clear all exception conditions, discard all queued I frames, reset the retransmission counter and timer T200 shall be set.

\*\*\* Next change \*\*\*

#### 6.2.8.3 Query port numbers procedure accepted by receiver

If the receiver supports the query port number functionality then upon receiving a MANAGE\_PORT command with the Action field set to "Query port", the receiver shall send a MANAGE\_PORT response to the originator by setting the Action field in response frame to "Query port". For each Destination Port that is reserved on the receiver for use by an application, the receiver shall include an entry in the MANAGE\_PORT response. The receiver shall set the Num Entries field in the MANAGE\_PORT response to the number of entries that are included in the MANAGE\_PORT response. For each Destination Port that is reserved on the receiver, the receiver shall include the Source Port number that the Destination Port is paired with and the Application ID of the application to be used with the reserved Destination Port. If the receiver does not have any reserved Source Port number for the associated Application ID, the Source Port number shall be set to 0. If the entries for all the source port numbers do not fit in the MANAGE\_PORT response, the receiver shall include as many entries on source port numbers as possible. For all the source port numbers that are reserved on the receiver and for which information cannot be included in the MANAGE\_PORT response, the receiver shall set the corresponding entry in the Port numbers not available bitmap. If the entries for all the destination port numbers requested by the originator fit in the MANAGE\_PORT response, the receiver shall not include the optional Port numbers not available bitmap. The receiver shall reset timer T200 if active and clear all exceptions.

\*\*\* Next change \*\*\*

#### 6.2.8.4 Query port numbers procedure completed by originator

Upon receipt of the MANAGE\_PORT response with the Action field set to "Query port", the originator shall make a note of all Destination Ports that are reserved for use with an application and may pass this information to upper layers. If the Port numbers not available bitmap is not set to zero, the originator can subsequently query information on these source port numbers by sending another MANAGE\_PORT command by setting the Action field to "Query port" and setting Requested port numbers to Port numbers not available in the received MANAGE\_PORT response.The originator shall reset timer T200 if active, clear all exception conditions and the query port numbers procedure is successfully completed.

\*\*\* Next change \*\*\*

#### 6.2.9.1 General

The originator and the receiver use the notify port number procedure if they support the handling as specified in subclause 5.4.2.6. The purpose of the notify port numbers procedure is for the originator to notify the receiver of the list of port numbers that are reserved for use with a specific application. All frames other than U and UI frames received during the notify port numbers procedure shall be ignored. It is optional for the receiver to support the notify port number functionality.

\*\*\* Next change \*\*\*

#### 6.2.9.2 Notify port numbers procedure initiation

The originator shall initiate the notify port numbers procedure when a Source Port on the originator may be reserved for use with an application.

The originator initiates the notify port numbers procedure by transmitting a MANAGE\_PORT command to the receiver by setting the Action field to "Notify port". For each Source Port that is reserved on the originator for use by an application, the receiver shall include an entry in the MANAGE\_PORT command. The originator shall set the Num Entries field in the MANAGE\_PORT command to the number of entries that are included in the MANAGE\_PORT response. For each Source Port that is reserved on the originator, the originator shall include the Destination Port number that the Source Port is paired with and the Application ID of the application to be used with the reserved Source Port. If the originator does not have any reserved Destination Port number for the associated Application ID, the Destination Port number shall be set to 0. If the entries for all the source port numbers do not fit in the MANAGE\_PORT command, the originator shall include as many entries on source port numbers as possible. For all the source port numbers that are reserved on the originator and for which information cannot be included in the MANAGE\_PORT command, the originator shall set the corresponding entry in the Port numbers not available bitmap. If the entries for all the source port numbers fit in the MANAGE\_PORT command, the originator shall not include the Port numbers not available bitmap. The originator shall clear all exception conditions, discard all queued I frames and reset the retransmission counter.

\*\*\* Next change \*\*\*

#### 6.2.9.3 Notify port numbers procedure accepted by receiver

If the receiver supports the notify port number functionality then upon receipt of the MANAGE\_PORT command with the Action field set to "Notify port", the receiver shall make a note of all Source Ports that are reserved for use with an application on the originator and may pass this information to upper layers. The receiver shall clear all exception conditions and the notify port numbers procedure is successfully completed.

If the Port numbers not available bitmap is included in the MANAGE\_PORT command, the receiver can subsequently query information on these source port numbers by sending a MANAGE\_PORT command by setting the Action field to "Query port" and setting Requested port numbers to Port numbers not available in the received MANAGE\_PORT command as described in subclause 6.2.8.