**3GPP TSG-CT1 Meeting #126-e *C1-206475***

**Electronic meeting, 15-23 October 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.250** | **CR** | **0024** | **rev** | **2** | **Current version:** | **16.3.0** |  |
|  |
| *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)*.* |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | Support for Indicating Serialization Format in RDS |
|  |  |
| ***Source to WG:*** | Intel, Convida Wireless LLC |
| ***Source to TSG:*** | CT1 |
|  |  |
| ***Work item code:*** | RDSSI, TEI17, CIoT\_Ext |  | ***Date:*** | 10-06-2020 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | As part of the RDSSI (SP-190446) work item, SA2 added support to the Reliable Data Service for indicating the serialization format of the data that will be sent in a NIDD session. This feature was added to the SCEF in TS 23.682 (clause 4.5.14.3) and the NEF in TS 23.501 (clause 5.13.6) and TS 23.502 (clause 4.25.3).Corresponding support needs to be added in stage-3 specifications. |
|  |  |
| ***Summary of change:*** | Update Manage Port command and response and add support for serialization format. The Reserve Port, Query Port and Notify Port commands are updated accordingly. |
|  |  |
| ***Consequences if not approved:*** | Serialization format indications would not be supported and stage-3 specification will be inconsistent with stage-2. |
|  |  |
| ***Clauses affected:*** | 2, 4.3.1, 5.4.2.6.1, 5.4.2.6.2, 5.4.2.6.4, 5.4.2.6.5, 6.2.6.2, 6.2.6.3, 6.2.6.4, 6.2.6.5, 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 \*\*\*\*\*

# 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 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".

[3] IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace".

[4] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[5] W3C Recommendation: "Extensible Markup Language (XML) 1.0 (Fifth Edition)", 26 November 2008

[6] IETF RFC 8529: "The JavaScript Object Notation (JSON) Data Interchange Format".

[7] IETF RFC 7049: "Concise Binary Object Representation (CBOR)", October 2013.

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

### 4.3.1 Protocol functions

RDS establishes a peer-to-peer logical link between the UE and the network. The logical link is identified by,

-a pair of port numbers and EPS bearer ID in EPS; or

- a pair of port numbers, PDU session identity and the QoS Flow Identifier in 5GS.

Each port number is used to identify an application on the UE side or at the network side and is carried in the address field of each frame. The source port number identifies the application on the originator and the destination port number identifies the application on the receiver. When a single application on the originator conducts data transfer with a single application on the receiver, the source port number and destination port number need not be used. Each RDS frame shall consist of a header and an information field of variable length. The header shall contain information about port numbers and the frame number that is used to identify the frame and provide reliable transmission. The information field contains the payload to be transferred between the UE and the network.

In EPS,

- the UE establishes a PDN connection with the SCEF or P-GW either during Attach or through UE requested PDN connectivity. The UE shall use the EPS bearer ID to select the bearer to transfer RDS PDUs to the SCEF or P-GW. The EPS bearer ID identifies the destination (at the UE or at the SCEF or P-GW) and is not carried in the frame as it is already included in the NAS ESM message header.

In 5GS,

- the UE establishes a PDU session with the SMF through UE requested PDU session establishment procedure. The UE shall use the PDU session identity and the QoS Flow Identifier to select the flow to transfer RDS PDUs to the NEF or UPF. The PDU session identity identifies the destination (at the UE or at the NEF or UPF) and is not carried in the frame as it is already included in the NAS 5GSM message header.

Once the UE and network successfully negotiate to use RDS for a particular PDN connection or a PDU session, the PDN connection or PDU session shall transfer data only using RDS protocol.

RDS shall support both single and multiple applications within the UE. RDS enables applications to reserve source and destination port numbers for their use and also subsequently release the reserved port numbers. When reserving ports applications can indicate the serialization format that they will be using. RDS also enables applications to query their peer entities to determine which port numbers are reserved and which are available for use at any given time. Applications can also additionally query their peer entities to determine the serialization format that will be used. RDS shall provide fuctionality for flow control and sequence control to maintain the sequential order of frames across the logical link. The UE and the network may support reservation of the source and the destination port numbers for their use and subsequent release of the reserved port numbers.

\*\*\*\* Next 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 and negotiate the serialization format that will be used by the application 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. Applications can also additionally reserve the serialization format to be used;

- 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. Applications can also additionally query the serialization format; and

- notify the list of port numbers that are reserved for use with a specific application. The serialization format used by the applications can also be additionally notified.

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 does 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 port0 0 1 0 Release port0 0 1 1 Query port0 1 0 0 Notify port0 1 0 1 Reserve port and serialization format0 1 1 0 Query port and serialization format0 1 1 1 Notify port and serialization formatAll other values are reserved.Application IdThis 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. |
|  |
| Serialization Format |
| This field is used to indicate the serialization format used by the application and shall be encoded as a bitmap of one octet as indicated below: |
| StatusThis 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:Bits8 7 6 5 4 3 2 10 0 0 0 0 0 0 0 Success0 0 0 0 0 0 0 1 Port not free0 0 0 0 0 0 1 0 Port not associated with specified application0 0 0 0 0 0 1 1 Serialization format not supportedAll other values are reserved.Requested port numbersThis 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 5.4.2.6.1.1.Port numbers not availableThis 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 5.4.2.6.1.2. |
|  |

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x) Serialization format

The serialization formats that are supported are coded in the first octet of the Serialization Format bitmap as follows:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| bit 8 | 7 | 6 | 5 | 4 | 3 | 2 | bit 1 |  |
| (reserved) | (reserved) | (reserved) | (reserved) | (reserved) | XML [5] | JSON [6] | CBOR [7] | Octet 1 |

A serialization format is supported, if the corresponding bit is set to "1". All reserved bits shall be set to "0".

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

##### 5.4.2.6.2 Reserve port numbers

If the originator wants to reserve a combination of source and destination port numbers for an application but does not want to negotiate the serialization format used by the application, the originator shall send a MANAGE\_PORT command as shown in figure 5.4.2.6.2-1 by setting the Action field to "Reseve port" and setting the Application ID field to the application to be associated with the combination of the Source Port and Destination Port numbers specified in the MANAGE\_PORT command. If the originator wants to reserve a combination of source and destination port numbers for an application and also negotiate the serialization format used by the application, the originator shall send a MANAGE\_PORT command as shown in figure 5.4.2.6.2-2 by setting the Action field to "Reserve port and serialization format" and shall also include all the serialization formats supported by the originator in the Serialization Format field.



Figure 5.4.2.6.2-1: MANAGE\_PORT command field format for Action "Reserve port"



Figure 5.4.2.6.2-2: MANAGE\_PORT command field format for Action "Reserve port and serialization format"

The receiver shall send a MANAGE\_PORT response as shown in figure 5.4.2.6.2-3 and figure 5.4.2.6.2-4, by setting the Action field in response frame to the same value of Action field received in the MANAGE\_PORT command frame. If the destination port specified in the MANAGE\_PORT command frame is not associated with any application on the receiver, the receiver shall reserve the destination port for use with the application identifier included in the MANAGE\_PORT command frame, and shall set the Status field in MANAGE\_PORT response frame to "Success", otherwise the Status field is set to "Port not free".

If the receiver was successful in reserving the destination port for use with the application identifier included in the MANAGE\_PORT command frame and the originator has indicated the serialization format supported by the application in the Serialization Format field of the MANAGE\_PORT command frame, the receiver checks if it can support the serialization format indicated by the originator. If the originator has indicated multiple serialization formats the reciver selects the best serialization format among those indicated that it can support. If the receiver can also support the serialization format indicated by the originator it sets the Serialization Format field in the MANAGE\_PORT response frame to the selected serialization format and shall set the Status field in the MANAGE\_PORT response frame to "Success".

If the receiver cannot support any of the serialization formats indicated by the originator it shall set the Serialization Format field in the MANAGE\_PORT response frame to the serialization formats that the receiver can support and shall set the Status field in the MANAGE\_PORT response frame to "Serialization format not supported". The receiver shall not reserve the destination port for use with the application identifier included in the MANAGE\_PORT command frame.



Figure 5.4.2.6.2-3: MANAGE\_PORT response field format for Action "Reserve port"



Figure 5.4.2.6.2-4: MANAGE\_PORT response field format for Action "Reserve port and serialization format"

If the Status field is set to "Success" in the MANAGE\_PORT response frame, the originator shall reserve the Source Port for use with the application specified in the MANAGE\_PORT command and select the serialization format indicated in the Serialization Format field in the MANAGE\_PORT response frame, for use with the application.

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

##### 5.4.2.6.4 Query port numbers

If the originator wants to query the destination port numbers that are reserved but does not want to query the serialization format used by the application, 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 wants to query the destination port numbers that are reserved and also wants to query the serialization format used by the application, the originator shall send a MANAGE\_PORT command by setting the Action field to "Query port and serialization format" 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" or Action "Query port with serialization format"

If the receiver received a MANAGE\_PORT command with Action field set to "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". If the receiver received a MANAGE\_PORT command with Action field set to "Query port and serialization format", the receiver shall send a MANAGE\_PORT response as shown in figure 5.4.2.6.4-3, by setting the Action field in response frame to "Query port and serialization format". 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. If the receiver received a MANAGE\_PORT command with Action field set to "Query port and serialization format", then for each destination port entry the receiver shall include the Serialization Format associated with the Application ID.

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.

NOTE: The entries for all the destination port numbers requested by the originator will fit in the MANAGE\_PORT command for cases where the maximum length of the OS specific application identifier is equal-to or less-than 64 octets.



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



Figure 5.4.2.6.4-3: MANAGE\_PORT response field format for Action "Query port and serialization format"

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\*\*\*\* 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 but does not want to notify the serialization format used by the application, 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". If the originator wants to notify the receiver of the source port numbers that are reserved at the originator and also the serialization format used by the application, the originator shall send a MANAGE\_PORT command as shown in figure 5.4.2.6.5-2 by setting the Action field to "Notify port and serialization format".

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. If the originator wants to notify the receiver about the serialization format used by the application, then for each destination port entry the originator shall also include the Serialization Format associated with the Application ID.

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.

NOTE: The entries for all the source port numbers will fit in the MANAGE\_PORT command for cases where the maximum length of the OS specific application identifier is equal-to or less-than 64 octets.



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



Figure 5.4.2.6.5-2: MANAGE\_PORT command field format for Action "Notify port and serialization format"

If the receiver supports MANAGE\_PORT command with Action field set to "Notify port" or "Notify port and serialization format", there is no response frame sent by the receiver when it receives the above MANAGE\_PORT command; otherwise the receiver transmits an ERROR response frame to the originator as described in subclause 5.4.2.4.

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

#### 6.2.6.2 Reserve port numbers procedure initiation

The originator shall initiate the reserve port numbers procedure when upper layers indicate information is to be transferred using a specific application. The upper layers may identify the source and destination port numbers to be reserved based on the available port numbers at originator and receiver before initiating the reserve port numbers procedure.

The originator initiates the reserve port numbers procedure by transmitting a MANAGE\_PORT command to the receiver. The originator shall set the Source Port to the port number to be reserved on the originator, the Destination Port to the port number to be reserved on the receiver, and the Application ID field to the identifier of the application to be associated with the combination of the Source Port and Destination Port numbers specified in the MANAGE\_PORT command. If the originator wants to reserve a combination of source and destination port numbers for an application but does not want to negotiate the serialization format used by the application, the originator shall set the Action field to "Reseve port". If the originator wants to reserve a combination of source and destination port numbers for an application and also negotiate the serialization format used by the application, the originator shall set the Action field to "Reserve port and serialization format" and shall also set all the serialization formats supported by the originator in the Serialization Format field. The originator shall clear all exception conditions, discard all queued I frames, reset the retransmission counter and timer T200 shall be set.

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

#### 6.2.6.3 Reserve port numbers procedure accepted by receiver

If the receiver supports the reserve port number functionality then upon receiving a MANAGE\_PORT command with the Action field set to "Reserve port" or "Reserve port and serialization format", the receiver checks if the Destination Port number contained in the MANAGE\_PORT command is associated with any application on the receiver.

If the check is successful the receiver shall reserve the Destination Port for use with the application identifier included in the MANAGE\_PORT command. The receiver shall send a MANAGE\_PORT response to the originator by setting the Action field in response frame to the same value of Action field received in the MANAGE\_PORT command frame and the Status field in MANAGE\_PORT response frame to "Success".

If the originator has indicated the serialization format supported by the application in the Serialization Format field of the MANAGE\_PORT command frame, the receiver checks if it can support the serialization format indicated by the originator. If the originator has indicated multiple serialization formats the reciver selects the best serialization format among those indicated that it can support. The receiver sets the Serialization Format field in the MANAGE\_PORT response frame to the selected serialization format.

The receiver shall reset timer T200 if active and clear all exceptions.

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

#### 6.2.6.4 Reserve port numbers procedure completed by originator

Upon receipt of the MANAGE\_PORT response with the Action field set to "Reserve port" or "Reserve port and serialization format", and if the Status field is set to "Success", the originator shall reserve the Source Port for use with the application identifier included in the MANAGE\_PORT command and select the serialization format indicated in the Serialization Format field in the MANAGE\_PORT response frame, for use with the application.. The originator shall reset timer T200 if active, clear all exception conditions and the reserve port numbers procedure is successfully completed.

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

#### 6.2.6.5 Reserve port numbers procedure not accepted by receiver

If the receiver supports the reserve port number functionality then upon receiving a MANAGE\_PORT command with the Action field set to "Reserve port" or "Reserve port and serialization format", if the Destination Port number contained in the MANAGE\_PORT command is already reserved for use with another application on the receiver then the receiver shall send a MANAGE\_PORT response to the originator by setting the Action field in response frame to "Reserve port" and the Status field in MANAGE\_PORT response frame to "Port not free".

If the receiver was successful in reserving the destination port for use with the application identifier included in the MANAGE\_PORT command frame and the originator has indicated the serialization format supported by the application in the Serialization Format field of the MANAGE\_PORT command frame and the receiver cannot support any of the serialization formats indicated by the originator, the receiver shall set the Serialization Format field in the MANAGE\_PORT response frame to the serialization formats that the receiver can support and shall set the Status field in the MANAGE\_PORT response frame to "Serialization format not supported". The receiver shall not reserve the destination port for use with the application identifier included in the MANAGE\_PORT command frame.

\*\*\*\*\* 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 and the associated serialization format. 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 or query the serialization format associated with an application.

The originator initiates the query port numbers procedure by transmitting a MANAGE\_PORT command to the receiver 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. If the originator only wants to query the destination port numbers that are reserved but does not want to query the serialization format used by the application, the originator shall set the Action field to "Query port", otherwise if the originator also wants to query the serialization format used by the application, the originator shall set the Action field to "Query port and serialization format". 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" or "Query port and serialization format", the receiver shall send a MANAGE\_PORT response to the originator by setting the Action field in response frame to the same value received in the Action field of the MANAGE\_PORT command. 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 receiver received a MANAGE\_PORT command with Action field set to "Query port and serialization format", then for each destination port entry the receiver shall include the Serialization Format associated with the Application ID.

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" or "Query port and serialization format", the originator shall make a note of all Destination Ports that are reserved for use with an application along with associated serialization format 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" or "Query port and serialization format" 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 and the associated serialization format. 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. If the originator wants to notify the receiver of only the source port numbers that are reserved at the originator but does not want to notify the serialization format used by the application, the originator sets the Action field to "Notify port", otherwise if the originator also wants to notify the receiver of the serialization format used by the application, the originator shall set the Action field to "Notify port and serialization format". 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 originator wants to notify the receiver about the serialization format used by the application, then for each destination port entry the originator shall also include the Serialization Format associated with the Application ID.

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" or "Notify port and serialization format", the receiver shall make a note of all Source Ports that are reserved for use with an application on the originator along with the associated serialization format 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" or "Query port and serialization format" and setting Requested port numbers to Port numbers not available in the received MANAGE\_PORT command as described in subclause 6.2.8.