**3GPP TSG-CT WG1 Meeting #133-eC1-217231**

**E-meeting, 11-19 November 2021 (revision of C1-216814)**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.539** | **CR** | **0011** | **rev** | **1** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Intel, NTT DOCOMO | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | Vertical\_LAN | | | | |  | ***Date:*** | | | 17-NOV-2021 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Static filtering entries information element is not aligned with IEEE 802.1Q clause 8.8.1 regarding the support for a port map containing multiple outbound ports per Static filtering entry as needed e.g. for multicast (group) MAC addresses. According to 802.1Qcc multicast (group) MAC addresses can be allocated per TSN stream. In case of multiple Listeners of the same TSN stream connected to different NW-TT ports the TSN AF may configure multiple outbound ports for the same MAC address.  Therefore, it is proposed to update Static filtering entries information element with the port-map as specified in IEEE 802.1Q. | | | | | | | | |
| ***;*** | |  | | | | | | | | |
| ***Summary of change:*** | | Add new Static filtering with port-map support entries information element. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not possible to support multiple outbound ports per Static filtering entry as defined in IEEE802.1Q. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.5B, 9.6B (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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

## 9.5B User plane node management list

The purpose of the User plane node management list information element is to transfer from the TSN AF to the NW-TT a list of operations related to User plane node management of the NW-TT to be performed at the NW-TT.

The User plane node management list information element is coded as shown in figure 9.5B.1, figure 9.5B.2, figure 9.5B.3, figure 9.5B.4, figure 9.5B.5, and table 9.5B.1.

The User plane node management list information element has a minimum length of 4 octets and a maximum length of 65530 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| User plane node management list IEI | | | | | | | | octet 1 |
| Length of User plane node management list contents | | | | | | | | octet 2  octet 3 |
| User plane node management list contents | | | | | | | | octet 4  octet z |

Figure 9.5B.1: User plane node management list information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Operation 1 | | | | | | | | octet 4  octet a |
| Operation 2 | | | | | | | | octet a+1\*  octet b\* |
| … | | | | | | | | octet b+1\*  …  octet c\* |
| Operation N | | | | | | | | octet c+1\*  octet z\* |

Figure 9.5B.2: User plane node management list contents

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Operation code | | | | | | | | octet d |

Figure 9.5B.3: Operation for operation code set to "00000001"

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Operation code | | | | | | | | octet d |
| User plane node parameter name | | | | | | | | octet d+1  octet d+2 |

Figure 9.5B.4: Operation for operation code set to "00000010", "00000100", or "00000101"

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Operation code | | | | | | | | octet d |
| User plane node parameter name | | | | | | | | octet d+1  octet d+2 |
| Length of User plane node parameter value | | | | | | | | octet d+3 octet d+4 |
| User plane node parameter value | | | | | | | | octet d+5  octet e |

Figure 9.5B.5: Operation for operation code set to "00000011"

Table 9.5B.1: User plane node management list information element

|  |
| --- |
| Value part of the User plane node management list information element (octets 4 to z) |
|  |
| The value part of the User plane node management list information element consists of one or several operations. |
|  |
| Operation |
|  |
| Operation code (octet d) |
| Bits  **8 7 6 5 4 3 2 1**  0 0 0 0 0 0 0 0 Reserved  0 0 0 0 0 0 0 1 Get capabilities  0 0 0 0 0 0 1 0 Read parameter  0 0 0 0 0 0 1 1 Set parameter (NOTE 1)  0 0 0 0 0 1 0 0 Subscribe-notify for parameter |
| 0 0 0 0 0 1 0 1 Unsubscribe for parameter |
| All other values are spare. |
|  |
| User plane node parameter name (octets d+1 to d+2) |
|  |
| This field contains the name of the User plane node parameter to which the operation applies, encoded as follows:  - 0000H Reserved;  - 0001H User plane node Address;  - 0002H Spare (NOTE 2)  - 0003H User plane node ID;  - 0004H NW-TT port numbers;  - 0005H  to Spare  - 0009H  - 0010H Spare (NOTE 3)  - 0010H Spare (NOTE 4)  - 0012H Static filtering entries; (NOTE X, NOTE Y)  - 0013H Static filtering with port-map support entries; (NOTE X, NOTE Y)  - 0013H  to Spare  - 0019H  - 0020H lldpV2PortConfigAdminStatusV2;  - 0021H lldpV2LocChassisIdSubtype;  - 0022H lldpV2LocChassisId;  - 0023H lldpV2MessageTxInterval;  - 0024H lldpV2MessageTxHoldMultiplier;  - 0025H  to Spare  - 004FH  - 0050H DS-TT port neighbor discovery configuration for DS-TT ports  - 0051H Discovered neighbor information for DS-TT ports  - 0052H  to Spare  - 006FH  - 0070H PSFPMaxStreamFilterInstances;  - 0071H PSFPMaxStreamGateInstances;  - 0072H PSFPMaxFlowMeterInstances;  - 0073H PSFPSupportedListMax;  - 0074H Supported PTP instance types  - 0075H Supported transport types  - 0076H Supported delay mechanisms  - 0077H PTP grandmaster capable  - 0078H gPTP grandmaster capable  - 0079H Supported PTP profiles  - 007AH Number of supported PTP instances  - 007BH DS-TT port time synchronization information list  - 007CH  to Spare  - 7FFFH  - 8000H  to Reserved for deployment specific parameters  - FFFFH |
| Length of User plane node parameter value (octets d+3 to d+4) |
|  |
| This field contains the binary encoding of the length of the User plane node parameter value |
|  |
| User plane node parameter value (octet d+5 to e) |
|  |
| This field contains the value to be set for the User plane node parameter.  When the User plane node parameter name indicates User plane node Address, the User plane node parameter value field contains the values of User plane node Address as defined in IEEE Std 802.1Q [7] clause 8.13.8. The length of User plane node parameter value field indicates a value of 6.  When the User plane node parameter name indicates User plane node ID, the User plane node parameter value field contains the values of User plane node Identifier as defined in IEEE Std 802.1Q [7] clause 14.2.5. The length of User plane node parameter value field indicates a value of 8.  When the User plane node parameter name indicates NW-TT port numbers, the User plane node parameter value field contains NW-TT port numbers as defined in 3GPP TS 23.501 [2] table 5.28.3.1-2, encoded as the value part of the NW-TT port numbers information element as specified in clause 9.14.  When the User plane node parameter name indicates Static filtering entries, the User plane node parameter value field contains Static filtering entries as defined in 3GPP TS 23.501 [2] table 5.28.3.1-2, encoded as the value part of the Static filtering entries information element as specified in clause 9.6. (NOTE X, NOTE Y)  When the User plane node parameter name indicates Static filtering with port-map support entries, the User plane node parameter value field contains Static filtering entries as defined in 3GPP TS 23.501 [2] table 5.28.3.1-2, encoded as the value part of the Static filtering with port-map support entries information element as specified in clause 9.6B. (NOTE X, NOTE Y)  When the User plane node parameter name indicates lldpV2PortConfigAdminStatusV2, the User plane node parameter value field contains values of lldpV2PortConfigAdminStatusV2 as specified in IEEE Std 802.1AB [6] clause 9.2.5.1 with value of txOnly encoded as 01H, rxOnly encoded as 02H, txAndRx encoded as 03H, and disabled encoded as 04H. The length of User plane node parameter value field indicates a value of 1.  When the User plane node parameter name indicates lldpV2LocChassisIdSubtype, the User plane node parameter value field contains values of lldpV2LocChassisIdSubtype as specified in IEEE Std 802.1AB [6] clause 8.5.2.2. The length of User plane node parameter value field indicates a value of 1.  When the User plane node parameter name indicates lldpV2LocChassisId, the User plane node parameter value field contains values of lldpV2LocChassisId in the form of an octet string as specified in IEEE Std 802.1AB [6] clause 8.5.2.3. The length of User plane node parameter value field indicates the length of the octet string with a maximum value of 255.  When the User plane node parameter name indicates lldpV2MessageTxInterval, the User plane node parameter value field contains the value of lldpV2MessageTxInterval as specified in IEEE Std 802.1AB [6] table 11-2. The length of User plane node parameter value field indicates a value of 2.  When the User plane node parameter name indicates lldpV2MessageTxHoldMultiplier, the User plane node parameter value field contains the value of lldpV2MessageTxHoldMultiplier as specified in IEEE Std 802.1AB [6] table 11-2. The length of User plane node parameter value field indicates a value of 1.  When the User plane node parameter name indicates DS-TT port neighbor discovery configuration for DS-TT ports, the User plane node parameter value field contains DS-TT port neighbor discovery configuration for DS-TT ports as defined in 3GPP TS 23.501 [2] table 5.28.3.1-2, encoded as the value part of the DS-TT port neighbor discovery configuration for DS-TT ports information element as specified in clause 9.10.  When the User plane node parameter name indicates Discovered neighbor information for DS-TT ports, the User plane node parameter value field contains Discovered neighbor information for DS-TT ports as defined in 3GPP TS 23.501 [2] table 5.28.3.1-2, encoded as the value part of the Discovered neighbor information for DS-TT ports information element as specified in clause 9.11.  When the User plane node parameter name indicates MaxStreamFilterInstances, the User plane node parameter value field contains the value of PSFPMaxStreamFilterInstances as specified in IEEE Std 802.1Q [7] clause 12.31.1.1. The length of User plane node parameter value field indicates a value of 4.  When the User plane node parameter name indicates PSFPMaxStreamGateInstances, the User plane node parameter value field contains the value of MaxStreamGateInstances as specified in IEEE Std 802.1Q [7] clause 12.31.1.1. The length of User plane node parameter value field indicates a value of 4.  When the User plane node parameter name indicates PSFPMaxFlowMeterInstances, the User plane node parameter value field contains the value of MaxFlowMeterInstances as specified in IEEE Std 802.1Q [7] Table 12-31. The length of User plane node parameter value field indicates a value of 4.  When the User plane node parameter name indicates PSFPSupportedListMax, the User plane node parameter value field contains the value of SupportedListMax as specified in IEEE Std 802.1Q [7] clause 12. 31.1.4. The length of User plane node parameter value field indicates a value of 4.  When the User plane node parameter name indicates Supported PTP instance types, the User plane node parameter value field contains an enumeration of supported PTP instance types as defined in IEEE Std 1588-2019 [11] clause 8.2.1.5.5 (see NOTE 5). The length of User plane node parameter value field is set to the number of supported PTP instance types.  When the User plane node parameter name indicates Supported transport types, the User plane node parameter value field contains an enumeration of supported transport types as defined in IEEE Std 1588-2019 [11] Annexes C, D and E, with transport type "IPv4" encoded as "00000000", transport type "IPv6" encoded as "00000001" and transport type "Ethernet" encoded as "00000010". The length of User plane node parameter value field is set to the number of supported transport types.  When the User plane node parameter name indicates Supported PTP delay mechanisms, the User plane node parameter value field contains an enumeration of supported delay mechanisms as defined in IEEE Std 1588-2019 [11] clause 8.2.15.4.4. The length of User plane node parameter value field is set to the number of supported delay mechanisms.  When the User plane node parameter name indicates PTP grandmaster capable, the User plane node parameter value field indicates whether the NW-TT supports acting as a PTP grandmaster, with a Boolean value of FALSE encoded as "00000000" and a Boolean value of TRUE encoded as "00000001". The length of User plane node parameter value field indicates a value of 1.  When the User plane node parameter name indicates gPTP grandmaster capable, the User plane node parameter value field indicates whether the NW-TT supports acting as a gPTP grandmaster, with a Boolean value of FALSE encoded as "00000000" and a Boolean value of TRUE encoded as "00000001". The length of User plane node parameter value field indicates a value of 1.  When the User plane node parameter name indicates Supported PTP profiles, the User plane node parameter value field contains an enumeration of supported PTP profiles' profileNames as defined in IEEE Std 1588-2019 [11] clause 20.3.3, with the "SMPTE Profile for Use of IEEE-1588 Precision Time Protocol in Professional Broadcast Applications" as defined in ST 2059-2:2015 [13] encoded as "00000000", the "IEEE 802.1AS PTP profile for transport of timing" profile as defined in IEEE Std 802.1AS [12] encoded as "00000001", the "Default delay request-response profile" as defined in IEEE Std 1588-2019 [11] clause I.3 encoded as "00000010", the "Default delay peer-to-peer delay profile" as defined in IEEE Std 1588-2019 [11] clause I.4 encoded as "00000011" and the "High Accuracy Delay Request-Response Default PTP profile" as defined in IEEE Std 1588-2019 [11] clause I.5 encoded as "00000100". The length of User plane node parameter value field is set to the number of supported PTP profiles.  When the User plane node parameter name indicates Number of supported PTP instances, the User plane node parameter value field contains the binary encoding of the number of supported PTP instances. The length of User plane node parameter value field indicates a value of 2.  When the User plane node parameter name indicates DS-TT port time synchronization information list, the User plane node parameter value field contains a DS-TT port time synchronization information list as defined in 3GPP TS 23.501 [2] table 5.28.3.1-2, encoded as the value part of the DS-TT port time synchronization information list information element as specified in clause 9.16.  When the hexadecimal encoding of the User plane node parameter name is in the "8000H" to "FFFFH" range, the encoding of the User plane node parameter value field and the value of the length of User plane node parameter value field are deployment-specific. |
|  |
| NOTE 1: The "Set parameter" operation shall not be applicable for the following bridge parameter names: - 0001H User plane node Address; - 0003H User plane node ID; - 0004H NW-TT port numbers; - 0051H Discovered neighbor information for DS-TT ports; - 0070H PSFPMaxStreamFilterInstances; - 0071H PSFPMaxStreamGateInstances; - 0072H PSFPMaxFlowMeterInstances; and - 0073H PSFPSupportedListMax.  NOTE 2: Implementations compliant with earlier versions of this release of the specification can interpret these values as signalling the User plane node Name.  NOTE 3: Implementations compliant with earlier versions of this release of the specification can interpret these values as signalling the Chassis ID subtype.  NOTE 4: Implementations compliant with earlier versions of this release of the specification can interpret these values as signalling the Chassis ID.  NOTE 5: The NW-TT signals support for PTP instance type "PTP relay instance" by indicating support for PTP profile "IEEE 802.1AS PTP profile for transport of timing" in the Supported PTP profiles User plane node parameter.  NOTE X: If a NW-TT includes User plane node parameter names 0012H Static filtering entires and 0013H Static filtering with port-map entries in the User plane node management capability IE, a TSN AF compliant with this version of the specification shall only include User plane node parameter name 0013H Static filtering with port-map entries.  NOTE Y: A NW-TT compliant with this version of the specification shall include User plane node parameter names 0012H Static filtering entires and 0013H Static filtering with port-map entries in the User plane node management capability IE. |

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

## 9.6B Static filtering with port-map support entries

The purpose of the Static filtering with port-map support entries information element is to convey Static filtering entries as defined in 3GPP TS 23.501 [2] table 5.28.3.1-2 and IEEE Std 802.1Q [7] clause 8.8.1.

The Static filtering with port-map support entries information element is coded as shown in figure 9.6B.1, figure 9.6B.2, figure 9.6B.3, figure 9.6B.4 and table 9.6B.1.

The Static filtering with port-map support entries information element has a minimum length of 3 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Static filtering with port-map support entries IEI | | | | | | | | octet 1 |
| Length of Static filtering with port-map support entries contents | | | | | | | | octet 2  octet 3 |
| Static filtering with port-map support entry 1 | | | | | | | | octet 4  octet m |
| … | | | | | | | |  |
| Static filtering with port-map support entry n | | | | | | | | octet o  octet p |

Figure 9.6B.1: Static filtering with port-map support entries information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| MacAddress value | | | | | | | | octet 4  octet 9 |
| VID value | | | | | | | | octet 10  octet 11 |
| Port map | | | | | | | | octet 12  octet m |

Figure 9.6B.2: Static filtering with port-map support entry

|  |  |
| --- | --- |
| Length of Port map | octet 12  octet 13 |
| Port map entry 1 | octet 14  octet q |
| ... | octet q+1  octet r |
| Port map entry n | octet r+1  octet s |

Figure 9.6B.3: Port map

|  |  |
| --- | --- |
| Length of Port map entry | octet 14 |
| Port value | octet 15  octet 16 |
| Control element value | octet 17 |
| Connection identifier value | octet 18\*  octet 19\* |

Figure 9.6B.4: Port map entry

Table 9.6B.1: Static filtering with port-map support entries

|  |
| --- |
| Value part of the Static filtering with port-map support entries information element (octets 4 to p) |
|  |
| Static filtering with port-map support entries contents (octets 4 to p)  This field consists of zero or more Static filtering with port-map support entries. |
|  |
| Static filtering with port-map support entry (octets 4 to m) |
|  |
| MacAddress value (octets 4 to 9)  MacAddress value contains the value of MAC address as specified in IEEE Std 802.1Q [7] clause 8.8.1. |
|  |
| VID value (octets 10 to 11)  VID value contains the value of VID specification as specified in IEEE Std 802.1Q [7] clause 8.8.1. |
|  |
| Port map entry (octets 14 to 19) |
|  |
| Port value (octets 15 to 16)  Port value contains the value of outbound Port as specified in IEEE Std 802.1Q [7] clause 8.8.1. |
|  |
| Control element value (octet 17)  Control element value contains an enumerated value of control element as specified in IEEE Std 802.1Q [7] clause 8.8.1 in the form of a binary encoded octet. IEEE Std 802.1Q [7] clause 8.8.1 item c1) is encoded as binary 0, IEEE Std 802.1Q [7] clause 8.8.1 item c2) is encoded as binary 1, and IEEE Std 802.1Q [7] clause 8.8.1 item c3) is encoded as binary 2. All other values are reserved. |
|  |
| Connection identifier value (octet 18 to 19)  Connection identifier value contains the connection\_identifier for the outbound Port as specified in IEEE Std 802.1Q [7] clause 8.8.1. |
|  |

\*\*\* End changes \*\*\*