**3GPP TSG-CT WG3 Meeting #116e C3-213200**

**E-Meeting, 19th – 28th May 2021 (Revision of C3-21xxxx)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.561** | **CR** | **0113** | **rev** |  | **Current version:** | **17.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Reporting UE local IP to Diameter DN-AAA server | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17, 5GS\_Ph1-CT, 5WWC | | | | |  | ***Date:*** | | | 2021-04-28 |
|  |  | | | |  | |  | | |  |
| ***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 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:*** | | When the UE is in WLAN access, the UE local IP address, UE UDP source port number or TCP source port number can be reported from N3IWF/ePDG to 5GC. The UE local IP address and port number have been included in N7, N40 interface and CHF CDR, while these information is still missing in the N6 interface Diameter message, SMF or SMF+PGW-C cannot report UE local IP information to the DN-AAA server. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Reusing the newly added 3GPP VSA for the UE local IP address and port number in Diameter messages. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Missing the UE local IP information when the UE is accessing via WLAN, cannot report UE local IP for authentication and/or authorization by ther DN-AAA server, DN AAA server also cannot handle user location based policy control, charging and/or accounting statistics for the UE with WLAN access. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 12.4.0, 12.6.1, 12.6.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

### 12.4.0 General

Table 12.4-1 lists the Diameter AVPs re-used by the N6 reference point from existing Diameter Applications, reference to the respective specifications and a short description of the usage within the N6 reference point.

Table 12.4-1: N6 re-used Diameter AVPs

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Attribute Name | AVP Code | Section defined | Value Type (NOTE 2) | AVP Flag rules (NOTE 1) | | | | May Encr. | Applicability |
| Must | May | Should not | Must not |
| 3GPP-IMSI | 1 | 3GPP TS 29.061 [5] (NOTE 3) | UTF8String | V | P |  | M | Y |  |
| 3GPP-Charging-Id | 2 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-PDP-Type | 3 | 3GPP TS 29.061 [5] (NOTE 3) | Enumerated | V | P |  | M | Y |  |
| 3GPP-CG-Address | 4 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-GPRS-Negotiated-QoS-Profile | 5 | 3GPP TS 29.061 [5] (NOTE 3) | UTF8String | V | P |  | M | Y |  |
| 3GPP-SGSN-Address | 6 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-GGSN-Address | 7 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-IMSI-MCC-MNC | 8 | 3GPP TS 29.061 [5] (NOTE 3) | UTF8String | V | P |  | M | Y |  |
| 3GPP-GGSN-MCC-MNC | 9 | 3GPP TS 29.061 [5] (NOTE 3) | UTF8String | V | P |  | M | Y |  |
| 3GPP-NSAPI | 10 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-Selection-Mode | 12 | 3GPP TS 29.061 [5] (NOTE 3) | UTF8String | V | P |  | M | Y |  |
| 3GPP-Charging-Characteristics | 13 | 3GPP TS 29.061 [5] (NOTE 3) | UTF8String | V | P |  | M | Y |  |
| 3GPP-CG-IPv6-Address | 14 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-SGSN-IPv6-Address | 15 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-GGSN-IPv6-Address | 16 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-IPv6-DNS-Servers | 17 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-SGSN-MCC-MNC | 18 | 3GPP TS 29.061 [5] (NOTE 3) | UTF8String | V | P |  | M | Y |  |
| 3GPP-IMEISV | 20 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-RAT-Type | 21 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-User-Location-Info | 22 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-MS-TimeZone | 23 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-Packet-Filter | 25 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-Negotiated-DSCP | 26 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-Allocate-IP-Type | 27 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| External-Identifier | 28 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| TWAN-Identifier | 29 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-User-Location-Info-Time | 30 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-Secondary-RAT-Usage | 31 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-UE-Local-IP-Address | 32 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-UE-Source-Port | 33 | 3GPP TS 29.061 [5] (NOTE 3) | OctetString | V | P |  | M | Y |  |
| 3GPP-Notification | 110 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-UE-MAC-Address | 111 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-Authorization-Reference | 112 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-Policy-Reference | 113 | 11.3.1 | OctetString | V | P |  | M | Y | NOTE 4 |
| 3GPP-Session-AMBR | 114 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-NAI | 115 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-Session-AMBR-v2 | 116 | 11.3.1 | OctetString | V | P |  | M | Y | eSessionAMBR |
| 3GPP-IP-Address-Pool-Info | 118 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-VLAN-Id | 119 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-TNAP-Identifier | 120 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-HFC-NodeId | 121 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-GLI | 122 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-Line-Type | 123 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-NID | 124 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-Session-S-NSSAI | 125 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-CHF-FQDN | 126 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-Serving-NF-FQDN | 127 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-Session-Id | 128 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| 3GPP-GCI | 129 | 11.3.1 | OctetString | V | P |  | M | Y |  |
| Supported-Features | 628 | 3GPP TS 29.229 [41] | Grouped | V | M |  |  | N |  |
| NOTE 1: The AVP header bit denoted as 'M', indicates whether support of the AVP is required. The AVP header bit denoted as 'V', indicates whether the optional Vendor-ID field is present in the AVP header. For further details, see IETF RFC 6733 [24].  NOTE 2: The value types are defined in IETF RFC 6733 [24].  NOTE 3: The use of Radius VSA as a Diameter vendor AVP is described in Diameter NASREQ (IETF RFC 7155 [23]) and the P flag may be set.  NOTE 4: It is not used in this release. | | | | | | | | | |

NOTE 1: Attribute 3GPP-CAMEL-Charging-Info (24) is not applicable for 5G in the present specification.

NOTE 2: Table 11.3-2 lists the differences between the RADIUS VSAs used in 5G and the VSAs defined in subclause 16.4.7 of 3GPP TS 29.061 [5].

\*\*\* 2nd Change \*\*\*

### 12.6.1 General

This clause describes the N6 Diameter messages.

The relevant AVPs that are of use for the N6 interface are detailed in this subclause. Other Diameter AVPs as defined in IETF RFC 4072 [25] and IETF RFC 7155 [23], even if their AVP flag rules are marked with "M", are not required for being compliant with the current specification.

Diameter messages as defined in subclause 16.4 of 3GPP TS 29.061 [5] are re-used in 5G with the following differences:

- SMF replaces GGSN/P-GW.

- 5G QoS flow replaces IP-CAN/EPS bearer and PDU session replaces IP-CAN session.

- N6 replaces Gi/Sgi.

NOTE: N6 re-used and specific AVPs are specified in subclause 12.3 and subclause 12.4.

- 3GPP-NAI AVP may be included in the AAR and ACR command.

- 3GPP-NID AVP may be included together with 3GPP-SGSN-MCC-MNC AVP in the AAR and ACR command.

- 3GPP-Session-S-NSSAI AVP and/or 3GPP-Session-Id may be included in the AAR and ACR command.

- Multiple 3GPP-IP-Address-Pool-Info AVPs may be included in the AAR command and one or two 3GPP-IP-Address-Pool-Info AVPs may be included in the AAA and ACR command.

- Multiple 3GPP-UE-MAC-Address AVPs may be included in the AAR and ACR command.

- For indicating user location, TWAN-Identifier AVP, 3GPP-TNAP-Identifier AVP, 3GPP-HFC-NodeId AVP, 3GPP-GLI AVP, 3GPP-Line-TypeAVP, 3GPP-UE-Local-IP-Address and optionally UDP or TCP source port number (if NAT is detected) may be included in the AAR and ACR command.

- Acct-Application-Id AVP shall be included in the ACR and ACA command as specified in IETF RFC 7155 [23].

- Additional Diameter messages needed for 5G compared to the 3GPP TS 29.061 [5] are described in the following subclauses.

- Multiple Supported-Features AVPs may be included in the ACR and ACA command.

\*\*\* 3rd Change \*\*\*

### 12.6.2 DER Command

The DER command, defined in IETF RFC 4072 [25], is indicated by the Command-Code field set to 268 and the 'R' bit set in the Command Flags field. It is sent by the SMF to the DN-AAA server upon reception of an initial access request (e.g. Nsmf\_PDUSession\_CreateSMContext) message for a given DNN to request user authentication and authorization.

The relevant AVPs that are of use for the N6 interface are detailed in the ABNF description below. Other valid AVPs for this command are not used for N6 purposes and should be ignored by the receiver or processed according to the relevant specifications.

The bold marked AVPs in the message format indicate new optional AVPs for N6, or modified existing AVPs.

Message Format:

<Diameter-EAP-Request> ::= < Diameter Header: 268, REQ, PXY >

< Session-Id >

{ Auth-Application-Id }

{ Origin-Host }

{ Origin-Realm }

{ Destination-Realm }

{ Auth-Request-Type }

[ Destination-Host ]

[ NAS-Port ]

[ NAS-Port-Id ]

[ NAS-Port-Type ]

[ Origin-State-Id ]

[ Port-Limit ]

[ User-Name ]

{ EAP-Payload }

[ EAP-Key-Name ]

[ Service-Type ]

[ Authorization-Lifetime ]

[ Auth-Grace-Period ]

[ Auth-Session-State ]

[ Callback-Number ]

[ Called-Station-Id ]

[ Calling-Station-Id ]

[ Originating-Line-Info ]

[ Connect-Info ]

\* [ Framed-Compression ]

[ Framed-Interface-Id ]

[ Framed-IP-Address ]

\* [ Framed-IPv6-Prefix ]

\* [ Delegated-IPv6-Prefix ]

[ Framed-IP-Netmask ]

[ Framed-MTU ]

[ Framed-Protocol ]

\* [ Tunneling ]

\* [ Proxy-Info ]

\* [ Route-Record ]

**[ External-Identifier ]**

**[ 3GPP-IMSI ]**

**[ 3GPP-NAI ]**

\* **[ 3GPP-UE-MAC-Address ]**

**[ 3GPP-Charging-ID ]**

**[ 3GPP-PDP-Type ]**

**[ 3GPP-CG-Address ]**

**[ 3GPP-CHF-FQDN ]**

**[ 3GPP-GPRS-Negotiated-QoS-Profile ]**

**[ 3GPP-SGSN-Address ]**

**[ 3GPP-GGSN-Address ]**

**[ 3GPP-Session-S-NSSAI ]**

**[ 3GPP-Session-Id ]**

**[ 3GPP-IMSI-MCC-MNC ]**

**[ 3GPP-GGSN-MCC-MNC ]**

**[ 3GPP-NSAPI ]**

**[ 3GPP-Selection-Mode ]**

**[ 3GPP-Charging-Characteristics ]**

**[ 3GPP-CG-IPv6-Address ]**

**[ 3GPP-SGSN-IPv6-Address ]**

**[ 3GPP-Serving-NF-FQDN ]**

**[ 3GPP-GGSN-IPv6-Address ]**

**[ 3GPP-SGSN-MCC-MNC ]**

**[ 3GPP-NID ]**

**[ 3GPP-User-Location-Info ]**

**[ 3GPP-RAT-Type ]**

**[ 3GPP-Negotiated-DSCP ]**

**[ 3GPP-Allocate-IP-Type ]**

**[ TWAN-Identifier ]**

**[ 3GPP-TNAP-Identifier ]**

**[ 3GPP-HFC-NodeId ]**

**[ 3GPP-GCI ]**

**[ 3GPP-GLI ]**

**[ 3GPP-Line-Type ]**

**[ 3GPP-UE-Local-IP-Address ]**

**[ 3GPP-UE-Source-Port ]**

\* **[ 3GPP-IP-Address-Pool-Info]**

\* **[ Supported-Features ]**

\* [ AVP ]

\*\*\* End of Changes \*\*\*