**3GPP TSG-CT WG4 Meeting #111-eC4-224423**

**E-Meeting, 18th – 26th August 2022** *Revision of C4-224142*

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.003** | **CR** | **0642** | **rev** | **1** | **Current version:** | **17.6.0** |  |
|  |
| *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:***  | NAI format for 5G NSWO |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | NSWO\_5G |  | ***Date:*** | 2022-08-05 |
|  |  |  |  |  |
| ***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 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | In May 2022, SA2#151e agreed CR3623 to TS 23.501 (S2-2204751), which clarifies that "when the UE decides to use 5G NSWO to connect to the WLAN access network using its 5GS credentials but without registration to 5GS, the NAI format for 5G NSWO is used whose realm is different than the realm defined for usage of Trusted non-3GPP access to the 5GC (defined in TS 23.003 [19] clause 28.7.6 and 28.7.7)". Therefore, it is necessary to specify NAI format for 5G NSWO. |
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| ***Summary of change:*** | 5G NSWO is added to the abbreviations. New clause is added that specifies NAI format for 5G NSWO. It is also clarified that '5gc', '5gc-nn' and '5gnswo' labels in the realm part differentiate the respective scenarios. |
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| ***Consequences if not approved:*** | NAI format for 5G NSWO is not specified.  |
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| ***Clauses affected:*** | 1.2, 28.7.6, 28.7.7, 28.7.x (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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev1: The username part in the new clause now refers to clause 28.7.3. |

\* \* \* First Change \* \* \* \*

## 1.2 Abbreviations

For the purposes of the present document, the abbreviations defined in 3GPP TS 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5G-BRG 5G Broadband Residential Gateway

5G-CRG 5G Cable Residential Gateway

5G-GUTI 5G Globally Unique Temporary Identifier

5G NSWO 5G Non-Seamless WLAN offload

5G-RG 5G Residential Gateway

5GS 5G System

5G-S-TMSI 5G S-Temporary Mobile Subscription Identifier

AMF Access and Mobility Management Function

EPS Evolved Packet System

ER EAP Re-authentication

ERP EAP Re-authentication Protocol

FN-BRG Fixed Network Broadband Residential Gateway

FN-CRG Fixed Network Cable RGGUAMI Globally Unique AMF Identifier

FN-RG Fixed Network RG

GUTI Globally Unique Temporary UE Identity

GCI Global Cable Identifier

GLI Global Line Identifier

GUTI Globally Unique Temporary UE Identity

HFC Hybrid Fiber Coax

HRNN Human Readable Network Name

ICS IMS Centralized Services

MTC Machine Type Communication

N5CW Non 5G Capable over WLAN

NCGI NR Cell Global Identity

NCI NR Cell Identity

NSI Network Specific Identifier

OCS Online Charging System

PEI Permanent Equipment Identifier

RACS Radio Capability Signalling Optimisation

RG Residential Gateway

SNPN Stand-alone Non-Public Network

SUCI Subscription Concealed Identifier

SUPI Subscription Permanent Identifier

TWAP Trusted WLAN AAA Proxy

UUID Universally Unique Identifier

V2X Vehicle-to-Everything

W-5GAN Wireline 5G Access Network

W-5GCAN Wireline 5G Cable Access Network

W-5GBAN Wireline BBF Access NetworkWebRTC Web Real-Time Communication

WLAN Wireless Local Area Network

WWSF WebRTC Web Server Function

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

### 28.7.6 NAI used for 5G registration via trusted non-3GPP access

While performing the EAP-authentication procedure when a UE attempts to register to 5GCN via a trusted non-3GPP access network (see clause 4.12a in 3GPP TS 23.502 [120]), the UE shall use a NAI in the following format:

"<any\_non\_null\_string>@nai.5gc.mnc<MNC>.mcc<MCC>.3gppnetwork.org"

Where:

a) the username part <any\_non\_null\_string> is any non null string; and

b) the label '5gc' in the realm part indicates the NAI is used for 5G registration via trusted non-3GPP access. <MNC> and <MCC> identify the PLMN (either HPLMN or VPLMN) to which the UE attempts to connect via the trusted non-3GPP access as described in clause 6.3.12 of 3GPP TS 23.501 [119].

NOTE 1: The username part of the NAI is not used to identify the UE since the UE is identified by its NAS registration to the 5GCN independent of using the NAI. The realm part of the NAI is however used by the trusted non-3GPP access for TNGF selection.

NOTE 2: In case of 5GCN, there is no need for a decorated NAI as in EPC (see clause 19.3.3), since the UE sends a NAS registration request to the PLMN including a SUCI or 5G-GUTI.

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

### 28.7.7 NAI used by N5CW devices via trusted non-3GPP access

While performing the EAP authentication procedure when a non 5G capable over WLAN (N5CW) device attempts to register to 5GCN via a trusted non-3GPP access network (see clause 4.12 b in 3GPP TS 23.502 [120]), the N5CW device shall use a NAI in the following format:

"<5G\_device\_unique\_identity>@nai.5gc-nn.mnc<MNC>.mcc<MCC>.3gppnetwork.org"

Where:

a) the username part <5G\_device\_unique\_identity> is to identify the N5CW device and contains either:

- SUCI as defined as the username part of the NAI format in clause 28.7.3, if the UE is not registred to 5GCN via NG-RAN; or

- 5G-GUTI as defined as the username part of the NAI format in clause 28.7.8, if the N5CW device is registred to 5GCN via NG-RAN; and

b) the label '5gc-nn' in the realm part indicates the NAI is used by N5CW devices via trusted non-3GPP access. <MNC> and <MCC> identify the PLMN (either HPLMN or VPLMN) to which the N5CW device attempts to connect via the trusted non-3GPP access as described in clause 6.3.12 of 3GPP TS 23.501 [119].

NOTE: As defined in 3GPP TS 33.501 [124], an N5CW device is authenticated using EAP-AKA', thus, it has a USIM that stores the HPLMN identity.

\* \* \* 4th Change \* \* \* \*

### 28.7.x NAI used for 5G NSWO

When the UE decides to use 5G NSWO to connect to the WLAN access network using its 5GS credentials but without registration to 5GS, the NAI format for 5G NSWO is used whose realm is different than the realm defined for usage during 5G registration via of Trusted non-3GPP access to the 5GCN (see clause 28.7.6) or when or N5CW devices access 5GCN via Trusted non-3GPP access to the 5GCN (see claiuse 28.7.7). See clause 5.42 in 3GPP TS 23.501 [119].

In the 5G NSWO use case, the UE shall use a NAI in the following format:

"<username>@nai.5gnswo.mnc<MNC>.mcc<MCC>.3gppnetwork.org"

Where:

a) the username part is defined in clause 28.7.3; and

b) the label '5gnswo' in the realm part indicates the NAI is used for 5G NSWO. <MNC> and <MCC> identify the PLMN (either HPLMN or VPLMN) to which the UE attempts to connect via the 5G NSWO as described in clause 4.2.15 of 3GPP TS 23.501 [119].

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