**3GPP TSG-CT WG1 Meeting #134-eC1-221683**

**E-Meeting, 17th – 25th February 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | 4123 | **rev** | **-** | **Current version:** | **17.5.0** |  |
|  | | | | | | | | |
| *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:*** | Extension of SNN description for NSWO | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NSWO\_5G | | | | |  | ***Date:*** | | | 2022-01-10 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Annex S of TS 33.501 specify requirements for the support of NSWO in 5GS.  "11.At receipt of the RAND and AUTN in the EAP-Request/AKA'-Challenge message, the ME shall construct the SN name by setting it to “5G:NSWO”,"  Stage-3 has to be updated to introduce the SNN of NSWO. | | | | | | | | |
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| ***Summary of change:*** | | 1) Add abbreviation for NSWO  2) Specify the NSWO Serving Network Name | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | NSWO authentication procedures are not supported in 5GS | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.2, 9.12.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

1st change

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 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].

4G-GUTI 4G-Globally Unique Temporary Identifier

5GCN 5G Core Network

5G-GUTI 5G-Globally Unique Temporary Identifier

5GMM 5GS Mobility Management

5G-RG 5G Residential Gateway

5G-BRG 5G Broadband Residential Gateway

5G-CRG 5G Cable Residential Gateway

5GS 5G System

5GSM 5GS Session Management

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

5G-TMSI 5G Temporary Mobile Subscription Identifier

5QI 5G QoS Identifier

ACS Auto-Configuration Server

AKA Authentication and Key Agreement

AKMA Authentication and Key Management for Applications

A-KID AKMA Key Identifier

A-TID AKMA Temporary Identifier

AMBR Aggregate Maximum Bit Rate

AMF Access and Mobility Management Function

APN Access Point Name

ATSSS Access Traffic Steering, Switching and Splitting

AUSF Authentication Server Function

CAG Closed access group

CGI Cell Global Identity

CHAP Challenge Handshake Authentication Protocol

DDX Downlink Data Expected

DL Downlink

DN Data Network

DNN Data Network Name

DNS Domain Name System

eDRX Extended DRX cycle

DS-TT Device-Side TSN Translator

EUI Extended Unique Identifier

E-UTRAN Evolved Universal Terrestrial Radio Access Network

EAC Early Admission Control

EAP-AKA' Improved Extensible Authentication Protocol method for 3rd generation Authentication and Key Agreement

EAS Edge Application Server

EASDF Edge Application Server Discovery Function

ECIES Elliptic Curve Integrated Encryption Scheme

ECS Edge Configuration Server

EEC Edge Enabler Client

EPD Extended Protocol Discriminator

EMM EPS Mobility Management

EPC Evolved Packet Core Network

EPS Evolved Packet System

EPS-UPIP User-plane integrity protection in EPS

ESM EPS Session Management

FN-RG Fixed Network RG

FN-BRG Fixed Network Broadband RG

FN-CRG Fixed Network Cable RG

Gbps Gigabits per second

GFBR Guaranteed Flow Bit Rate

GUAMI Globally Unique AMF Identifier

IAB Integrated access and backhaul

IMEI International Mobile station Equipment Identity

IMEISV International Mobile station Equipment Identity and Software Version number

IMSI International Mobile Subscriber Identity

IP-CAN IP-Connectivity Access Network

KSI Key Set Identifier

LADN Local Area Data Network

LCS LoCation Services

LMF Location Management Function

LPP LTE Positioning Protocol

MAC Message Authentication Code

MA PDU Multi-Access PDU

MBS Multicast/Broadcast Services

Mbps Megabits per second

MCS Mission Critical Service

MFBR Maximum Flow Bit Rate

MICO Mobile Initiated Connection Only

MINT Minimization of Service Interruption

MPS Multimedia Priority Service

MUSIM Multi-USIM

N3IWF Non-3GPP Inter-Working Function

N5CW Non-5G-Capable over WLAN

N5GC Non-5G Capable

NAI Network Access Identifier

NITZ Network Identity and Time Zone

ngKSI Key Set Identifier for Next Generation Radio Access Network

NPN Non-public network

NR New Radio

NSAC Network Slice Admission Control

NSACF Network Slice Admission Control Function

NSSAA Network slice-specific authentication and authorization

NSSAAF Network Slice-Specific and SNPN authentication and authorization Function

NSSAI Network Slice Selection Assistance Information

NSSRG Network Slice Simultaneous Registration Group

NSWO Non-Seamless WLAN Offload

ON-SNPN Onboarding Standalone Non-Public Network

OS Operating System

OS Id OS Identity

PAP Password Authentication Protocol

PCO Protocol Configuration Option

PEI Permanent Equipment Identifier

PEIPS Paging Early Indication with Paging Subgrouping

PNI-NPN Public Network Integrated Non-Public Network

ProSe Proximity based Services

ProSeP 5G ProSe policy

PTI Procedure Transaction Identity

PVS Provisioning Server

QFI QoS Flow Identifier

QoS Quality of Service

QRI QoS Rule Identifier

RACS Radio Capability Signalling Optimisation

(R)AN (Radio) Access Network

RFSP RAT Frequency Selection Priority

RG Residential Gateway

RPLMN Registered PLMN

RQA Reflective QoS Attribute

RQI Reflective QoS Indication

RSN Redundancy Sequence Number

RSNPN Registered SNPN

S-NSSAI Single NSSAI

SA Security Association

SDF Service Data Flow

SMF Session Management Function

SGC Service Gap Control

SNN Serving Network Name

SNPN Stand-alone Non-Public Network

SOR Steering of Roaming

SOR-CMCI Steering of Roaming Connected Mode Control Information

SUCI Subscription Concealed Identifier

SUPI Subscription Permanent Identifier

TA Tracking Area

TAC Tracking Area Code

TAI Tracking Area Identity

Tbps Terabits per second

TMGI Temporary Mobile Group Identity

TNGF Trusted Non-3GPP Gateway Function

TSC Time Sensitive Communication

TSCTSF Time Sensitive Communication and Time Synchronization Function

TWIF Trusted WLAN Interworking Function

TSN Time-Sensitive Networking

UAS Uncrewed Aerial System

UAV Uncrewed Aerial Vehicle

UDM Unified Data Management

UL Uplink

UPDS UE policy delivery service

UPF User Plane Function

UPSC UE Policy Section Code

UPSI UE Policy Section Identifier

URN Uniform Resource Name

URSP UE Route Selection Policy

USS UAS Service Supplier

UUAA USS UAV Authorization/Authentication

V2X Vehicle-to-Everything

V2XP V2X policy

W-AGF Wireline Access Gateway Function

WLAN Wireless Local Area Network

WUS Wake-up signal

2nd change

### 9.12.1 Serving network name (SNN)

The serving network name (SNN) is used:

- in the Network name field of the AT\_KDF\_INPUT attribute defined in IETF RFC 5448 [40];

- in KAUSF derivation function as specified in 3GPP TS 33.501 [24] annex A; and

- in RES\* and XRES\* derivation function as specified in 3GPP TS 33.501 [24] annex A.

SNN shall contain a UTF-8 string without terminating null characters.

SNN is of maximum length of 1020 octets.

SNN consists of SNN-service-code and SNN-network-identifier, delimited by a colon.

SNN-network-identifier identifies the serving PLMN or the serving SNPN or NSWO.

MCC and MNC in the SNN-PLMN-ID are MCC and MNC of the serving PLMN. If the MNC of the serving PLMN has two digits, then a zero is added at the beginning.

MCC and MNC in the SNN-SNPN-ID are MCC and MNC of the serving SNPN. If the MNC of the serving SNPN has two digits, then a zero is added at the beginning.

SNN-NID contains an NID in hexadecimal digits.

ABNF syntax of SNN is specified in table 9.12.1.1

Table 9.12.1.1: ABNF syntax of SNN

SNN = SNN-service-code ":" SNN-network-identifier

SNN-service-code = %x35.47 ; "5G"

SNN-network-identifier = SNN-PLMN-ID / SNN-SNPN-ID / NSWO

SNN-PLMN-ID = SNN-mnc-string SNN-mnc-digits "." SNN-mcc-string SNN-mcc-digits "." SNN-3gppnetwork-string "." SNN-org-string ; applicable when not operating in SNPN access operation mode.

SNN-SNPN-ID = SNN-mnc-string SNN-mnc-digits "." SNN-mcc-string SNN-mcc-digits "." SNN-3gppnetwork-string "." SNN-org-string ":" SNN-NID ; applicable when operating in SNPN access operation mode.

NSWO = %x4e.53.57.4f; applicable to NSWO.

SNN-mnc-digits = DIGIT DIGIT DIGIT ; MNC of the PLMN ID

SNN-mcc-digits = DIGIT DIGIT DIGIT ; MCC of the PLMN ID

SNN-mnc-string = %x6d.6e.63 ; "mnc" in lower case

SNN-mcc-string = %x6d.63.63 ; "mcc" in lower case

SNN-3gppnetwork-string = %x33.67.70.70.6e.65.74.77.6f.72.6b ; "3gppnetwork" in lower case

SNN-org-string = %x6f.72.67 ; "org" in lower case

SNN-NID = 11SNN-hexadecimal-digit ; NID in hexadecimal digits

SNN-hexadecimal-digit = DIGIT / %x41 / %x42 / %x43 / %x44 / %x45 / %x46

NOTE: SNN-service-code allows for distinguishing of ANID specified in 3GPP TS 24.302 [16] and SNN as either of SNN or ANID can be carried in the AT\_KDF\_INPUT attribute.

EXAMPLE 1: In case of a PLMN, if PLMN ID contains MCC = 234 and MNC = 15, SNN is 5G:mnc015.mcc234.3gppnetwork.org.

EXAMPLE 2: In case of an SNPN, if SNPN ID contains a PLMN ID of MCC = 234 and MNC = 15 and an NID of 123456ABCDEH, SNN is 5G:mnc015.mcc234.3gppnetwork.org:123456ABCDE.

EXAMPLE 3: In case of an NSWO, SNN is 5G:NSWO.

End of changes