**3GPP TSG-SA3 Meeting #115 *draft\_S3-240957-r1***

**Athens, Greece, 26 February - 1 March 2024** **(revision of S3-240391)**

**Source: InterDigital Inc.**

**Title: New SID on security aspects User Identities and Authentication**

**Document for: Approval**

**Agenda Item: 6**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>   
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Study on security aspects of User Identities and Authentication

Acronym: FS\_UIA\_Sec

Unique identifier:

Potential target Release: Rel-19

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | x |  | x |  |
| No |  |  | x |  |  |
| Don't know | x |  |  |  | x |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

|  |  |
| --- | --- |
| x | Study |
|  | Normative – Stage 1 |
|  | Normative – Stage 2 |
|  | Normative – Stage 3 |
|  | Normative – Other\* |

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| N/A | N/A | N/A | N/A |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 800012 | User Identities and Authentication | SA1 normative work on requirements for User Identifiers |
| 930029 | Personal IoT and Residential Networks | SA1 normative work on Personal IoT Networks; requirements for User Identifiers apply to Personal IoT Networks |
| 940065 | Study on Personal IoT Networks | SA2 study on Personal IoT Networks |
| 980011 | Personal IoT Networks | SA2 normative work on Personal IoT Networks |
| 1020063 | Study on the Enhancement of Usage of User Identifiers in the 5G System | SA2 study on Usage of User Identifiers in the 5G System |

# 3 Justification

By enhancing the 5G System to allow for the creation and utilization of user-specific identities, operators will be able to provide enhanced user experience, optimized performance, and offer services to non-3GPP devices and human users. For example, network settings can be adapted, and services can be tailored according to the users’ needs, different from the subscription identifier that is used by the user to establish the connection.

The reason for utilizing user-specific identities in the 3GPP network is to allow the operator to charge and provide service differentiation based on the user identifier. Support for associating an identifier with traffic of a UE may enable charging and service differentiation by a UE or 5G-RG’s home network operator for human users or for users who’s non-3GPP device(s) connect to the 5GC via the 5G-RG.

In this study, the user to be identified could be an individual human user using a UE with a certain subscription or a device behind a gateway UE or 5G-RG.

SA2 is considering two main use cases (see TR 23.700-32):

* Use case #1: one or more users (i.e., humans identified by user identifier) sharing one UE.
* Use case #2: one or more non-3GPP devices behind one gateway UE or 5G-RG.

SA2 has identified the following high level Work Tasks:

* Work Tasks 1.x focus on supporting Use case #1, including: How user identifiers and associated attributes (e.g., security credentials, specific user settings etc) are managed in the 5GC, linked/unlinked by the operator to a 3GPP subscription and considered by the 3GPP system when delivering a service.
* Work Tasks 2.x focus on supporting Use case #1, including: How users are authenticated and authorized (including interwork with/exposure to 3rd party), and aspects of user identifiers usage restrictions (e.g., active user identifiers per subscription, roaming scenario).
* Work Tasks 3.x focus on supporting Use case #2, including: How the network identifies non-3GPP devices communicating via a UE or 5G-RG.

# 4 Objective

This study has the following objectives:

1. Study authentication and authorization of:
   1. a user identifier associated with a subscription and used on a UE (i.e., human user) and
   2. an identifier associated with a non-3GPP device behind a UE or 5G-RG.

NOTE: Credentials are assumed to be provisioned in the non-3GPP device by an operator, human user or a 3rd party. How this is performed is not in scope of this study. The authentication of the non-3GPP device is not done by the 5GC.

1. Study privacy and security impacts of usage of user identifiers associated with a subscription or with a non-3GPP device behind a UE or 5G-RG, including exposure of user profile related information.

NOTE: Additional privacy and security aspects related to SA2 Work Tasks can be addressed based on SA2 progress.

## TU estimates and dependencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Work Task ID | TU Estimate  (Study) | TU Estimate  (Normative) | RAN Dependency  (Yes/No/Maybe) | Inter Work Tasks Dependency |
| **WT1** | **3** | **1.25** | No | No |
| **WT2** | **1** | **0.75** | No | No |

Total TU estimates for the study phase: **4**

Total TU estimates for the normative phase: **2**

Total TU estimates: **6**

# 5 Expected Output and Time scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type | TS/TR number | Title | For info  at TSG# | For approval at TSG# | Rapporteur |
| Internal TR | 33.7xy | Study on the Security Aspects for Usage of User Identifiers in the 5G System | SA#104  (September 2024) | SA#105 (December 2024) |  |

# 6 Work item Rapporteur(s)

# 7 Work item leadership

SA3

# 8 Aspects that involve other WGs

System architectural aspects will be covered by SA2.

Charging aspects will be covered by SA5.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| InterDigital Inc. |
| CableLabs |
| KPN |
| Lenovo |
| Nokia, Nokia Shanghai Bell |
| OPPO |
| Philips International B.V. |
| Telecom Italia |
| vivo |
| Xiaomi |