**3GPP TSG-SA3 Meeting #115AdHoc-e *draft\_S3-241497-r5***

Electronic meeting, online, 15 – 19 April 2024

**Title: LS to request clarification on the definition of digital identifier**

**Response to: NA**

**Release: Rel-19**

**Work Item: FS\_Metaverse\_Sec**

**Source: Samsung to be SA3**

**To: SA1, SA6**

**Cc: SA2, SA4**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments:** S3-24xxxx

# 1 Overall description

SA3 has started the work in TR 33.721 for “Study on security aspects of 5G Mobile Metaverse services” with the following objectives:

- Authentication and authorization of digital identity (non-IMS based)

- Support of security aspects of digital asset container

- Security aspects and procedure enhancements on application enablement for Localized Mobile Metaverse Services including the privacy aspects for exposure of user sensitive information (for e.g., how to control the access of a user’s assets to another user).

As there is no definition of “digital identity” in TS 22.156 and TR 23.700-21, it is difficult to progress with the study. In order to have authenticated and authorized access to the digital asset, some contributions are considering an identifier “digital asset identifier” to uniquely identify the digital asset. However during the discussion it was questioned, whether user identifier can be used to identify the digital asset. SA3 has tentatively defined the term “digital asset identifier” to identify a digital asset, as in the enclosed proposal.

SA3 kindly requests the following clarifications from SA1 and SA6:

1. For the purpose of digital asset access and management, does each digital asset need a unique identifier?
2. Whether SA1 and/or SA6 is considering to use user identifier to identify a digital asset?
3. If answer to above question is no, then which identifier is used to identify a digital asset and who has control over the namespace for the identifiers?
4. Does the term “digital asset identifier” in the enclosed proposal define the identifier for digital asset?
5. In digital asset definition in clause 3 of TS 22.156, it describes "Examples of digital assets include digital representation (avatar), software licenses, gift certificates, tokens and files (e.g., music files) that have been purchased". In the same clause and clause 5.2.3 (Digital asset management), it mentioned that EU digital identity wallet management is one example of digital asset management. In 4.2 of TR 23.700-21, it specially mentioned "digital assets with clear ownership rights", For example, a user designed and produced a digital human image which can be sold to others.

According to above information, can we understand there're four types of digital asset:

a. Digital identity, e.g. similar to European Digital Identity, which can be used to uniquely identify a "human", which including information such as national ID, passport, tax number, driving license, etc.

b. Digital identity for specific services, e.g. credit card, mobile subscriber number (SUPI, MSISDN, etc.), digital representation for specific service/application (e.g. avatar), certificate, token, etc.

c. Digital product purchased by a human, e.g. software licenses, gift certificates, music files

d. Digital product produced by a human with intellectual property concerns, e.g. a user designed and produced a digital human image. When another user likes the digital human image and wants to use it, he/she needs to request and obtain the owner's consent.

If so, which type of the digital asset will be managed in 3GPP defined digital asset container? Which type of the digital asset will be used in 5G defined metaverse services and how will the digital asset be used?

1. How is a digital asset associated with a user (i.e. owner of the digital asset) or a 3GPP subscription?
	1. Is it an 1:m, an n:1 or an n:m relation (and is this different for avatars)?
	2. Are these relationships stable or can they change (can user release ownership / acquire ownership of digital assets / trade digital assets)
2. What exactly is a digital asset, i.e. is it only data or does it encompass an execution environment to model interaction and render the digital asset?
3. Where does the digital asset reside when not being actively used (operator controlled NF, external AF, and/or UE)?
4. Where does the digital asset reside when being actively used (same NF, AF, UE as when not being actively used, or moved to different entity for execution)?
	1. Is a digital asset considered to be mobile, i.e. can it be moved between platforms while not being actively used and/or while being actively used?
5. Can a digital asset/avatar be copied and does the copied digital asset retain the digital asset identifier after copying?
6. Can a digital asset/avatar be modified and does the modified avatar retain the digital asset identifier after modification?
	1. Who can modify an avatar (user/operator/ external entity) and how (modifying the data directly or calling APIs)?
	2. Who can set/change the avatar identifier that is being displayed to the parties interacting with the avatar?
7. In case an avatar represents a user in communication, is it only one digital asset representing a user, or multiple (i.e. are skins / behaviours of an avatar part of one digital asset that that represents a user or are there several digital assets representing that user?)
8. In case an avatar represents a user in communication, do all digital assets reside on servers / devices under control of one entity, i.e. is there the necessity of interaction of different metaverse platforms?
	1. Do all avatars reside on operator controlled servers, or can they also reside on UEs / external AFs?
	2. Where are the avatars rendered?
9. In case of XR, when several XR applications are running at the same time in the same location, are the digital artefacts of the applications expected to interact with each other?
	1. When the applications are run by the same user
	2. When the applications are run by different users
10. What could be other use cases of avatar besides non-IMS based Avatar communications?

# 2 Actions

**To SA1, SA6**

**ACTION:** Please take the above information into account and provide us the requested information.

# 3 Dates of next TSG SA WG 3 meetings

SA3#116 20 - 24 May 2024 Jeju (South Korea)

SA3#117 19 - 23 August 2024 Maastricht (Netherlands)