**SA WG2 Meeting #161 S2-2402017r1**

**26 February - 1 March, 2024, Athens, Greece**

**Source: vivo**

**Title: New Sol: Association of registrations**

**Document for: Approval**

**Agenda Item: 19.13**

**Work Item / Release: FS\_MASSS / Rel-19**

*Abstract of the contribution: This paper proposes a new Solution for subscription and registration.*

# 1 Discussion

This paper proposes a new solution for KI#1.1 subscription and KI#1.2 registration of the FS\_MASSS SID (SP-231802).

# 2 Proposal

It is proposed to include the following changes in TR 23.700-54 V0.1.0.

 **\* \* \* \* Start of Changes \* \* \* \***

6.0 Mapping of Solutions to Key Issues

**Table 6.0-1: Mapping of DualSteer Solutions to Key Issues**

|  |  |
| --- | --- |
|  | **Key Issues for DualSteer** |
| **Solution#** | **<Key Issue #1.1>** | **<Key Issue #1.2>** |  |  |
| **#X** | x | x |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Table 6.0-2: Mapping of ATSSS\_Ph4 Solutions to Key Issues**

|  |  |
| --- | --- |
|  | **Key Issues for ATSSS\_Ph4** |
| **Solution#** | **<Key Issue #2.1>** | **<Key Issue #2.2>** |  |  |
| **#Y** |  |  |  |  |
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|  |  |  |  |  |

 **\* \* \* \* Second Change (all new text) \* \* \* \***

6.1.X Solution #X: Association of registrations

#### 6.1.X.1 Description

This solution addresses the Key Issue#1.1 "Subscription aspects to support DualSteer" and Key Issue#1.2 "Registration and mobility management for DualSteer".

#### 6.1.X.2 Procedures

##### 6.1.X.2.1 Information flow



**Figure 6.1.X.2.1-1: Association of registrations**

1-5. The DualSteer device initiates 5GS registration procedure with SUPI#1 towards serving network#1. The AMF#1 in serving network#1 registers itself into UDM or UDM+HSS for SUPI#1.

6. The DualSteer device decides to perform dual registration with SUPI#2, it initiates 5GS initial registration procedure or EPS Attach procedure towards serving network#2.

7. Authentication and NAS security setup procedures with SUPI#2 are performed to activate integrity protection and NAS ciphering.

8. The AMF#2 in serving network#2 invokes Nudm\_UECM\_Registration Request service operation to register AMF ID#2 into UDM for SUPI#2, or the MME in serving network#2 sends Update\_Location Request to register MME ID into UDM+HSS for SUPI#2.

9. The UDM or UDM+HSS associates the two registration procedures as dual-registration from a DualSteer device according to subscription data, and marks "dual-registration activated" for the DualSteer device.

NOTE: How to use the mark of "dual-registration activated" for policy and session management is addressed in other KIs related to session and policy.

10. The AMF#2 or MME of the serving network#2 responds to the DualSteer device.

##### 6.1.X.2.2 Subscription data

In order to support dual registration of a DualSteer device, a new IE of "DualSteer Authorization" is included in the Access and Mobility Subscription data to authorize whether a SUPI is allowed to be used for DualSteer. If authorized, new subscription data types, i.e., DualSteer Pair and DualSteer Pair Data, are used to accommodate the management information for a DualSteer device.

To associate two subscriptions/SUPIs for DualSteer, the term “DualSteer Pair” is introduced to indicate two SUPIs that share the same subscription profile and has corresponding subscription data.

Following tables 6.1.X.2.2-1, 6.1.X.2.2-2, and 6.1.X.2.2-3 show the subscription enhancement for DualSteer.

Table 6.1.X.2.2-1: UE Subscription data types

| Subscription data type | Field | Description |
| --- | --- | --- |
| Access and Mobility Subscription data (data needed for UE | … | … |
| Registration and Mobility Management) | DualSteer Authorization | Indicates whether the SUPI is allowed to be used for DualSteer. If allowed, it indicates the **DualSteer Pair Identifier**.(NOTE 1) |
|  | … | … |
|  |  |  |
|  |  |  |
| NOTE 1: Subject to the solutions to other KIs on DualSteer, the DualSteer Authorization field may need to be included in, e.g., session management, to indicates that the SUPI has subscribed DualSteer feature. |

Table 6.1.X.2.2-2: DualSteer Subscription data types

| Subscription data type | Field | Description |
| --- | --- | --- |
| DualSteer Pair | DualSteer Pair Identifier | Identifies the pair of SUPIs that share the same subscription profile that supports DualSteer. |
|  | SUPI list | Corresponding SUPI list, i.e., 2 SUPIs |
| DualSteer Pair Data | DualSteer Pair Identifier | Identifiers of the DualSteer Pair that the DualSteer Pair Data belongs to. |
|  | DualSteer data | Subscription data for supporting DualSteer(NOTE 1) |
| NOTE 1: The content of Dualsteer data is subject to the solutions to other KIs on DualSteer, considering the subscription information related to access and mobility, session management, and policy aspects, for example the DNN an S-NSSAI specific parameters to support DualSteer. |

Table 6.1.X.2.2-3: DualSteer Subscription data types keys

|  |  |  |
| --- | --- | --- |
| Subscription Data Types | Data Key | Data Sub Key |
| DualSteer Pair | DualSteer Pair Identifier | - |
| DualSteer Pair Data | DualSteer Pair Identifier | - |

The benefit of introducing the DualSteer Pair is to facilitate the management of the two SUPIs when they act as one DualSteer Device. They could be managed using the share data feature, for example, the network could assign the DNN an S-NSSAI specific parameters to support DualSteer, or the PCF could update policies that targeting the pair.

Meanwhile, if the UE itself is not capable of DualSteer feature, it can still use the common subscription data of one SUPI, i.e., the network and UE do not need to consider any DualSteer related information.

#### 6.1.X.3 Impacts on services, entities and interfaces

Editor's note: This clause captures impacts on existing 3GPP services, entities and interfaces.

**UDM/UDR:**

- Subscription data is enhanced to support DualSteer.

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