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Technical Report

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Keywords
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3GPP

Postal address

3GPP support office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet
http://www.3gpp.org

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Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

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where:

- x the first digit:
  - 1 presented to TSG for information;
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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document is to evaluate the feasibility of introduction of an InterWorking Function (IWF) between MAP-based and Diameter-based interfaces. This evaluation will be based on the study of various concrete interworking deployment scenarios for which an IWF can/could be used. For each scenario, it will be analysed how the IWF fulfils the specific interworking requirements and performs the mapping of procedures and the corresponding parameter handling.

The present document will study the related mechanism for the interworking scenarios, e.g. addressing. The other mechanism, such as security, will also be described in this document as a part of the whole solution.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[<seq>] <doctype> <#>[([up to and including]{yyyy[-mm]|V<a[.b[.c]]>}[onwards])]: "<Title>".

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TR 29.803: "3GPP Evolved Packet System: CT WG4 Aspects (Stage 3)".

[3] 3GPP TS 23.401: "GPRS enhancements for E-UTRAN access ".

[4] 3GPP TS 33.401: "3GPP System Architecture Evolution: Security Architecture".

[5] 3GPP TS 29.272: "Evolved Packet System; MME Related Interfaces Based on Diameter Protocol".

[6] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[7] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[8] 3GPP TS 29.305: "InterWorking Function (IWF) Between MAP based and Diameter based interfaces".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

Rel8 HSS-MME: This term is used in this TR to identify the entity that terminates the S6a interface.

Rel8 HSS-SGSN: This term is used in this TR to identify the entity that terminates the S6d interface.

Rel8 HLR: This term is used in this TR to identify the entity that terminates the Rel8 Gr interface.

Pre Rel8 HLR: This term is used in this TR to identify the entity that terminates the Pre-Rel8 Gr interface.

3.2 Symbols

For the purposes of the present document, the following symbols apply:

Symbol format

<symbol> <Explanation>

3.3 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].

EPS	Evolved Packet System
IWF	Interworking Function
MME	Mobility Management Entity
TAU	Tracking Area Update

4A General

4A.1 User Data Handling Principles

The HSS/HLR shall download the user data it has (i.e. common user data + S4 SGSN user data + MME user data + Gn/Gp SGSN user data) and allow the peer entity to choose what it needs. Using this principle, the S6a/S6d/Gr interface needs to be extended to support the user data used for the other entities (Note: that Gr needs to support the user data for the MME/S4-SGSN but the S6a/S6d does not need to support the user data for Gn/Gp SGSN). The MME/S4-SGSN / Gn/Gp SGSN is therefore, transparent from the HSS/HLR point of view. It should also be noted, that if this method is used, the possibility for user data mapping allows a greater efficiency.

When required to be used, the user data is mapped to the MME/S4-SGSN/Gn/Gp SGSN. This allows the IWF to be simplified. The S6a/S6d/Gr interface is required to be extended to enable support of the user data required for the other entity. This method cannot be used by Pre-Rel8 Gn/Gp SGSN because the Pre-Rel8 Gr cannot be extended in this case. This will limit the scope of the IWF scenario 5. The MME and the S4-SGSN already have the MME/Bearer context mapping function for interworking between EUTRAN and UTRAN/GERAN.

4A.2 Message Routeing Mechanism for IWF

For the same user, the messages shall go to and come back through the same route with the same IWF(s) in the duration of a MAP dialog.

The routing of the first message from the MME/S4-SGSN to the IWF/HSS is the same as for a normal Diameter message. If the MME/S4-SGSN knows the address/name of the IWF/HSS for a certain user, both the Destination-Realm and Destination-Host AVPs shall be present in the request. Otherwise, only the Destination-Realm AVP shall be present and the command shall be routed to the next Diameter node based on the Diameter routing table in the client.

To ensure the correct message routing for the interworking scenarios, the IWFs in the network shall be able to map the SS7 number and the Diameter identity of the MME/S4-SGSN 1-to-1. This can be achieved by static or dynamic configuration.

4A.3 Security Consideration for IWF

To support the full EPS-AKA security level for the related IWF scenarios, the AuC part of the Pre Rel8 HLR in the HPLMN is to be upgraded so that MAP authentication vector requests from nodes serving E-UTRAN can be identified, the detailed mechanism is described in 3GPP TS 33.401 [4].

4 The Interworking Scenarios

4.1 Scenario One: S6a/S6d - Gr interworking scenario with one IWF

This interworking scenario is for S6a/S6d interface based on Diameter and Gr interface based on MAP with one IWF in the path.

This IWF scenario will apply the following network deployment situation:

- Users of a Pre Rel8 UMTS/GPRS network access into a visited EPS with only E-UTRAN. The subscription data for Pre Rel8 UMTS/GPRS is downloaded to MME. Mapping of the subscription data is done on MME. Additional security solution is needed in which the Pre Rel8 HLR can not be changed.

- Users of a Pre Rel8 UMTS/GPRS network access into a visited EPS with E-UTRAN and UTRAN/GERAN. The subscription data for Pre Rel8 UMTS/GPRS is downloaded to S4-SGSN. Mapping of the subscription data is done on S4-SGSN. Security solution is not needed because the security mechanism in visited and home network is the same.

This IWF scenario can be an inter PLMN use case in which IWF may be located in the HPLMN or VPLMN. This IWF scenario can be an intra PLMN use case for operator to do the partly update of their legacy network.

This interworking scenario is described as below:

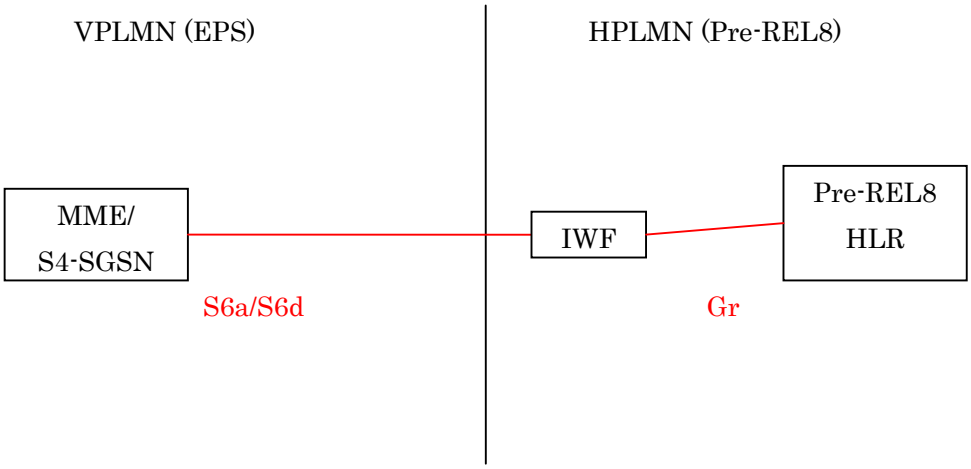

Figure 4.1-1 S6a/S6d - Gr interworking scenario with one IWF located in home PLMN

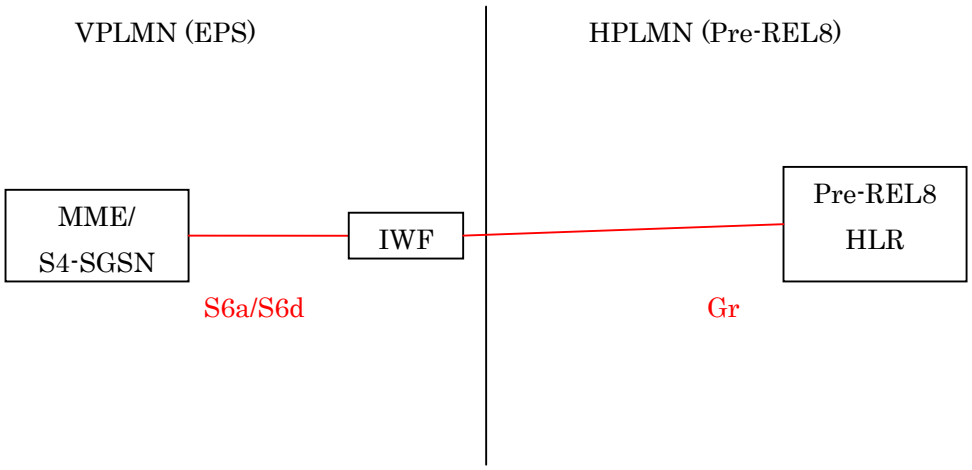

Figure 4.1-2 S6a/S6d - Gr interworking scenario with one IWF located in visited PLMN

4.1A Scenario Two: S13/S13' - Gf interworking scenario with one IWF

This interworking scenario is for S13/S13' interface based on Diameter and Gf interface based on MAP with one IWF in the path.

With this interworking scenario, the ME identity/IMEISV of a user from a Pre Rel8 UMTS/GPRS network can be checked in a visited EPS. This scenario can only be used within the operator's network. This interworking scenario is described as below:

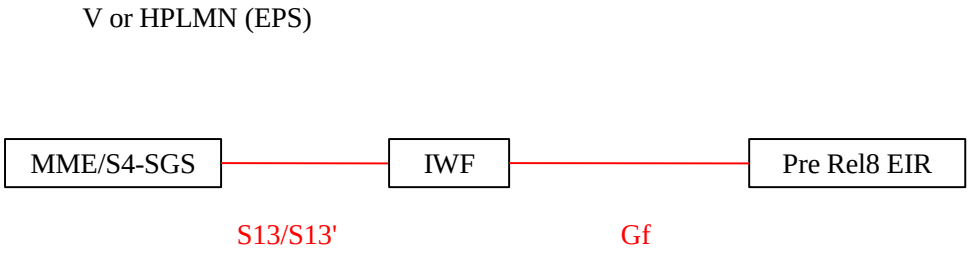

Figure 4.1A-1 S13/S13' - Gf interworking scenario with one IWF

4.2 Scenario Three: S6a/S6d - Rel8 Gr interworking scenario with one IWF

This interworking scenario is for S6a/S6d interface based on Diameter and Rel8 Gr interface based on MAP with one IWF in the path.

This IWF scenario will apply the following network deployment situation:

- Users of a Rel8 UMTS/GPRS network access into a visited EPS with only E-UTRAN. The subscription data for Rel8 UMTS/GPRS is downloaded to MME. Mapping of the subscription data is done on MME. Additional security solution is needed in which the Pre Rel8 HLR can be changed.

- Users of a Pre Rel8 UMTS/GPRS/E-UTRAN network access into a visited EPS with only E-UTRAN. The subscription data for Pre Rel8 UMTS/GPRS and the subscription data for MME is downloaded to MME. MME picks up the subscription data for MME and discards the subscription data for Pre Rel8 UMTS/GPRS.

- Users of a Rel8 UMTS/GPRS network access into a visited EPS with E-UTRAN and UTRAN/GERAN. The subscription data for Rel8 UMTS/GPRS is downloaded to S4-SGSN or MME. Mapping of the subscription data is done on S4-SGSN or MME. Security solution is not needed because the security mechanism in visited and home network is the same.

- Users of a Pre Rel8 UMTS/GPRS/E-UTRAN network access into a visited EPS with E-UTRAN and UTRAN/GERAN. The subscription data for Rel8 UMTS/GPRS is downloaded to S4-SGSN or MME. Mapping of the subscription data is done on S4-SGSN or MME. Security solution is not needed because the security mechanism in visited and home network is the same.

This IWF scenario can be an inter PLMN use case in which IWF may be located in the HPLMN or VPLMN. This IWF scenario can be an intra PLMN use case for operator to do the partly update of their legacy network.

This interworking scenario is described as below:

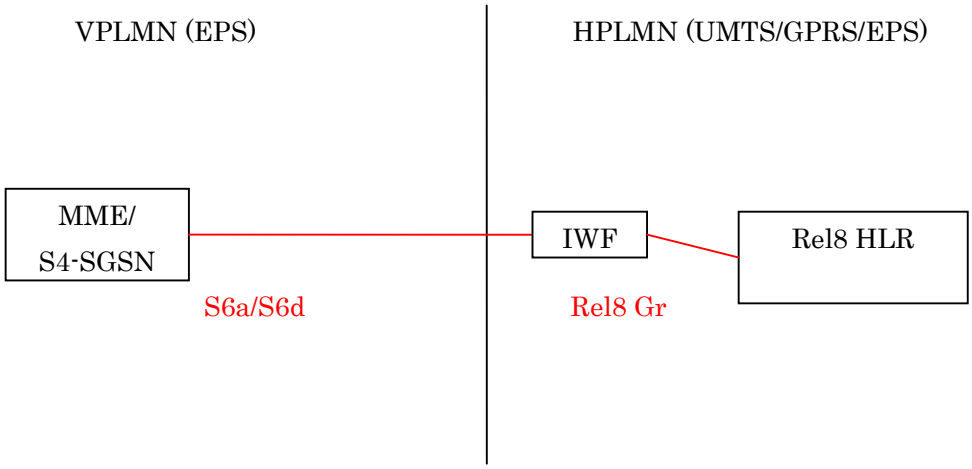

Figure 4.2-1 S6a/S6d - Rel8 Gr interworking scenario with one IWF located in home PLMN

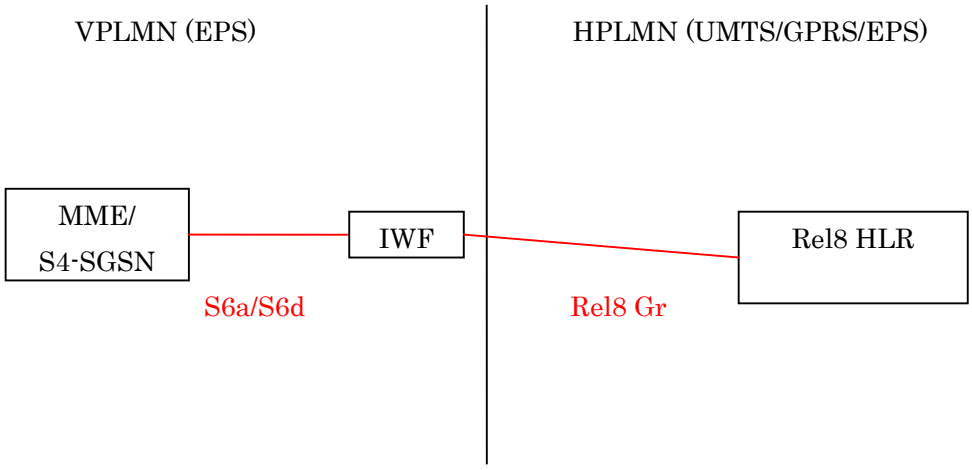

Figure 4.2-2 S6a/S6d - Rel8 Gr interworking scenario with one IWF located in visited PLMN

4.3 Scenario Four: S6a/S6d - S6a/S6d interworking scenario with two IWFs

This interworking scenario is for S6a/S6d interface based on Diameter, S6a/S6d interface based on Diameter and SS7/MAP based roaming agreement with two IWFs in the path.

This IWF scenario will apply the following network deployment situation:

- Users of a Pre Rel8 UMTS/GPRS/EPS for UTRAN/GERAN and E-UTRAN network access into a visited EPS with only E-UTRAN. The subscription data for Pre Rel8 UMTS/GPRS, subscription data for S4-SGSN and the subscription data for MME is downloaded to MME. MME picks up the subscription data for MME and discards the subscription data for Pre Rel8 UMTS/GPRS and the subscription data for S4-SGSN.

- Users of a Pre Rel8 UMTS/GPRS/EPS for UTRAN/GERAN and E-UTRAN network access into a visited EPS with E-UTRAN and UTRAN/GERAN. The subscription data for Pre Rel8 UMTS/GPRS, subscription data for S4-SGSN and the subscription data for MME is downloaded to S4-SGSN. S4-SGSN picks up the subscription data for S4-SGSN and discards the subscription data for Pre Rel8 UMTS/GPRS and the subscription data for MME.

- Users of an EPS for UTRAN/GERAN and E-UTRAN network access into a visited EPS with only E-UTRAN. The subscription data for S4-SGSN and the subscription data for MME is downloaded to MME. MME picks up the subscription data for MME and discards the subscription data for the subscription data for S4-SGSN.

- Users of an EPS for UTRAN/GERAN and E-UTRAN network access into a visited EPS with E-UTRAN and UTRAN/GERAN. The subscription data for S4-SGSN and the subscription data for MME is downloaded to S4-SGSN. S4-SGSN picks up the subscription data for S4-SGSN and discards the subscription data for MME.

- Users of a Pre Rel8 UMTS/GPRS/EPS for E-UTRAN only network access into a visited EPS with only E-UTRAN. The subscription data for Pre Rel8 UMTS/GPRS and the subscription data for MME is downloaded to MME. MME picks up the subscription data for MME and discards the subscription data for Pre Rel8 UMTS/GPRS.

Note: This IWF scenario can not be used for interworking between two EPS network with only E-UTRAN in which there in no MAP based roaming agreement to be reused.

With this interworking scenario, two EPS operators can reuse the SS7 based roaming agreement.

This IWF scenario can only be an inter PLMN use case in which the two IWFs are in the VPLMN and HPLMN separately.

This interworking scenario is described as below:

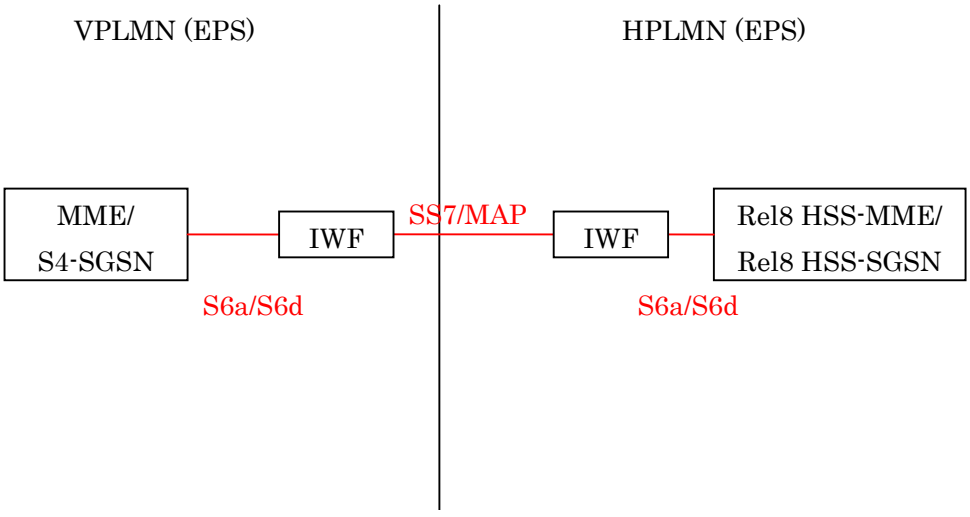

Figure 4.3-1 S6a/S6d - S6a/S6d interworking scenario with two IWFs

4.3A Scenario Five: Gr/Rel8 Gr - S6a/S6d interworking scenario with one IWF

This interworking scenario is for Gr/Rel8 Gr interface based on MAP and S6a interface based on Diameter with one IWF in the path.

Editor's note: It is FFS whether this scenario is valid.

This IWF scenario will apply the following network deployment situation:

- Users of an EPS for E-UTRAN only network access into a visited Pre Rel8 UMTS/GPRS. The subscription data for Pre Rel8 UMTS/GPRS is configured in the home network just for these roaming users and only this subscription data for Pre Rel8 UMTS/GPRS is downloaded to SGSN. Mapping of the subscription data is done on SGSN.

- Users of an EPS for E-UTRAN only network access into a visited Rel8 UMTS/GPRS. The subscription data for Rel8 UMTS/GPRS is configured in the home network just for these roaming users and only this subscription data for Rel8 UMTS/GPRS is downloaded to SGSN. Mapping of the subscription data is done on SGSN.

- Users of an EPS for E-UTRAN and UTRAN/GERAN network access into a visited Pre Rel8 UMTS/GPRS. The subscription data for Pre Rel8 UMTS/GPRS is configured in the home network just for these roaming users and only this subscription data for Pre Rel8 UMTS/GPRS is downloaded to SGSN. Mapping of the subscription data is done on SGSN.

- Users of an EPS for E-UTRAN and UTRAN/GERAN network access into a visited Rel8 UMTS/GPRS. The subscription data for Rel8 UMTS/GPRS is configured in the home network just for these roaming users and only this subscription data for Rel8 UMTS/GPRS is downloaded to SGSN. Mapping of the subscription data is done on SGSN.

This IWF scenario can be an inter PLMN use case in which IWF should in the HPLMN so the MAP based roaming agreement can be reused. This IWF scenario can be an intra PLMN use case for operator to do the partly update of their legacy network.

This interworking scenario is described as below:

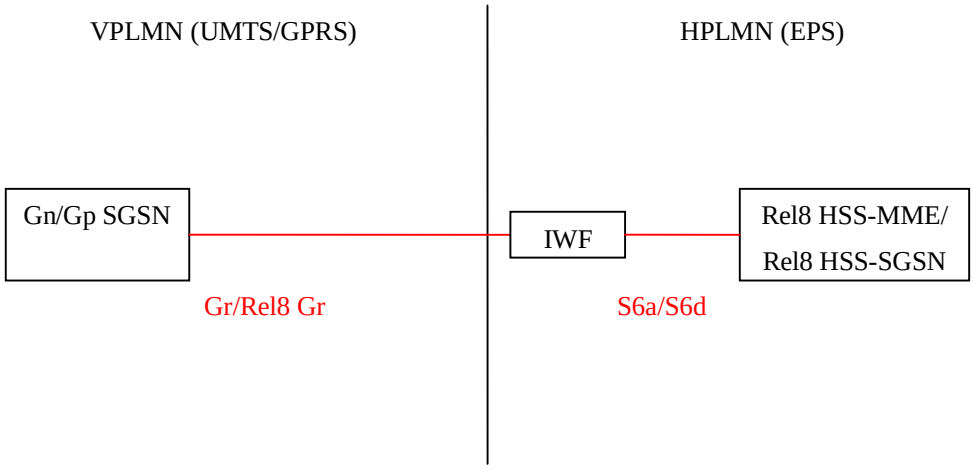

Figure 4.3A-1 Gr/Rel Gr - S6a interworking scenario with one IWF

4.4 Zh based BSF – Zh' based HSS interworking scenario with one IWF

This network interworking scenario is for BSF using Diameter based Zh interface and HSS using MAP based Zh' interface with one IWF in the path. The BSF optionally implements the Zh' already. Hence, when analysing this scenario, it is important to consider backward impacts. Whether the IWF analysed in this chapter is functionally the

same as other IWF's analysed in this TR will be determined during the analysis. The case may be that the IWF analysed in this scenario results in considering the IWF as an internal function of the BSF and thus does not need to be exposed.

This interworking scenario is described as below:

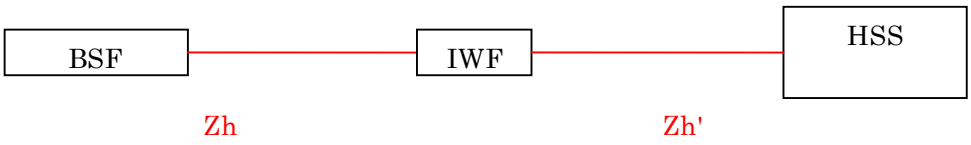

Figure 4.4-1 Zh based BSF – Zh' based HSS interworking scenario with one IWF

4.5 Wx based AAA Server - D'/Gr' based HSS/HLR interworking scenario with one IWF

This network interworking scenario is for AAA Server using Diameter based Wx interface and HSS/HLR using MAP based D'/Gr' interface with one IWF in the path. The 3GPP AAA server optionally implements the D'/Gr' already. Hence, when analysing this scenario, it is important to consider backward impacts. Whether the IWF analysed in this chapter is functionally the same as other IWF's analysed in this TR will be determined during the analysis. The case may be that the IWF analysed in this scenario results in considering the IWF as an internal function of the 3GPP AAA server and thus does not need to be exposed.

This interworking scenario is described as below:

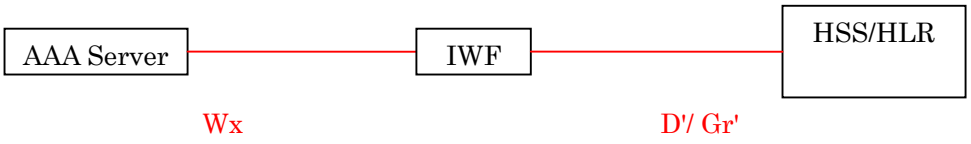

Figure 4.5-1 Wx based AAA Server - D'/Gr' based HSS/HLR interworking scenario with one IWF

5 The Mapping of the Procedures

5.1 The Procedure Mapping for Scenario One

5.1.1 Update location and Insert Subscriber Data Procedure

This section describes registration procedure based on the scenario described in section 4.1. In this procedure, the MME/S4-SGSN is registered in the Pre Rel8 HLR and the subscriber data is sent to the MME/S4-SGSN. This procedure is part of the E-UTRAN Initial Attach procedure or UTRAN/GERAN Initail Attach procedure with S4-SGSN or Tracking Area Update procedure or Routing Area Update procedure with S4-SGSN, which are detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

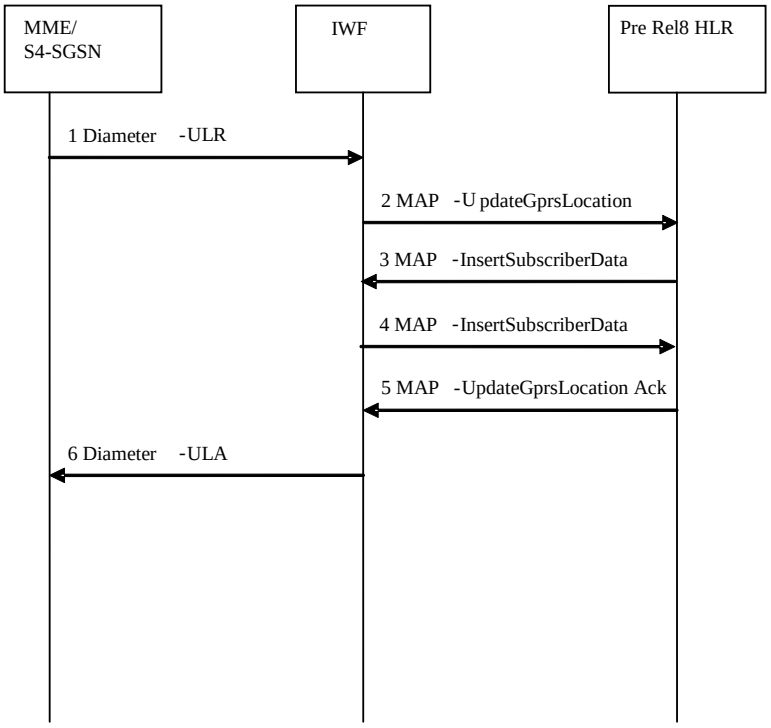

Figure 5.1.1-1: Update location and Insert Subscriber Data Procedure via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-ULR (containing the MME/S4-SGSN Identity, IMSI, ME Identity, List of MME/S4-SGSN Supported Features) message to the IWF.

2. The IWF maps this Diameter-ULR message to a MAP-UpdateGprsLocation message (see section 6.2 for more details). Then the IWF sends this MAP-UpdateGprsLocation (containing the SGSN Identity, IMSI, IMEISV) message to Pre Rel8 HLR.

3. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6]. The Pre Rel8 HLR then sends a MAP-InsertSubscriberData (containing the IMSI, GPRS User Data) message to the IWF. Sending of MAP InsertSubscriberData may be skipped by the HLR if a "skip subscriber data" indication was received in the MAP UpdateGprsLocation message. This message might be segmented if the complete GPRS User Data can not be sent in one MAP message. Segmentation is not shown in figure 5.1.1-1. Note that segmentation of MAP InsertSubscriberData messages may be done in acknowledge mode or in burts mode.

4. The IWF memorizes the received User Data. The IWF sends a MAP-InsertSubscriberData Ack message to the Pre Rel8 HLR as the response to each related request message.

5. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6]. After receiving all of the MAP-InsertSubscriberData Ack messages, the Pre Rel8 HLR structures and then sends a MAP-UpdateGprsLocation Ack message to the IWF.

6. After receiving the MAP-UpdateGprsLocation Ack messages, the IWF structures the Complete GPRS User Data based on the memorized information. The IWF structures (see section 6.6 for more details) and then sends a Diameter-ULA (Complete GPRS User Data) message to the MME/S4-SGSN. The MME/S4-SGSN needs to do the user data mapping function to get the EPS user data. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.1.2 Insert Subscriber Data procedure

This section describes Insert Subscriber Data procedure based on scenario described in section 4.1. This procedure is to add or modify the subscriber Data in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

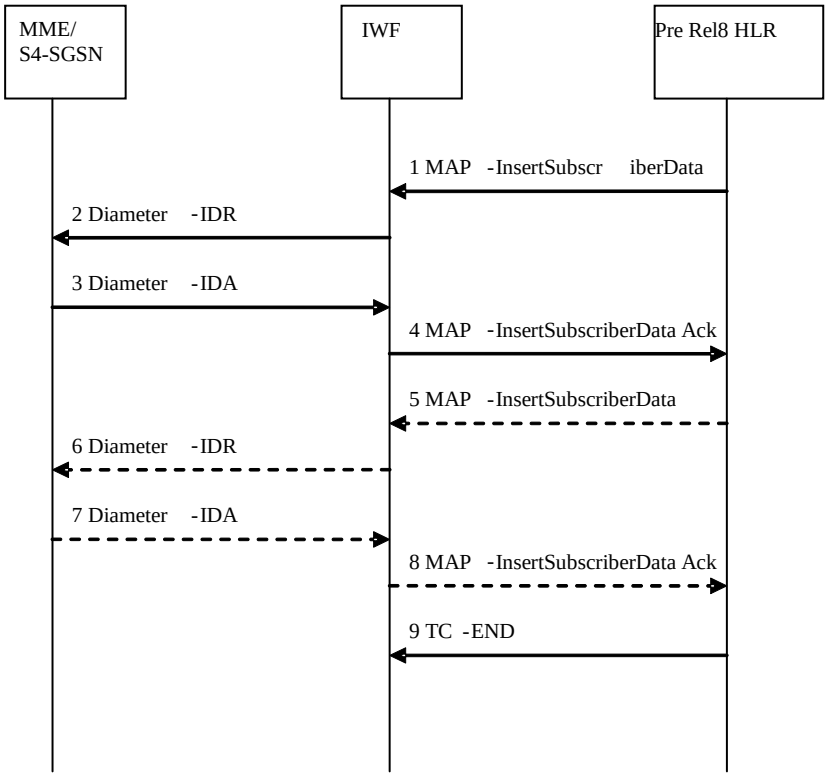

Figure 5.1.2-1: Insert Subscriber Data procedure interworking via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The Pre Rel8 HLR sends a MAP-InsertSubscriberData (IMSI, GPRS User Data) message to the IWF.

2. The IWF maps this MAP- InsertSubscriberData message to a Diameter-IDR message (see section 6.8 for more details). Then the IWF sends this Diameter-IDR (containing the IMSI, GPRS user Data) message to the MME/S4-SGSN. The MME/S4-SGSN needs to do the user data mapping function to get the EPS user data.

3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-IDA message to the IWF.

4. The IWF maps this Diameter-IDA message to a MAP- InsertSubscriberData Ack message (see section 6.9 for more details). Then the IWF sends this MAP- InsertSubscriberData Ack message to the Pre Rel8 HLR.

5-8. If the User Data can not be sent in one MAP message, the steps 1-4 may be repeated based on the segmentation of the MAP message. Note that segmentation of MAP InsertSubscriberData messages may be done in acknowledge mode or in burts mode.

9. After receiving all of the MAP-InsertSubscriberData Ack messages, the Pre Rel8 HLR sends a TC-END message to the IWF. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6].

5.1.3 Delete Subscriber Data procedure

This section describes Delete Subscriber Data procedure based on scenario described in section 4.1. This procedure is to delete the subscriber Data in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

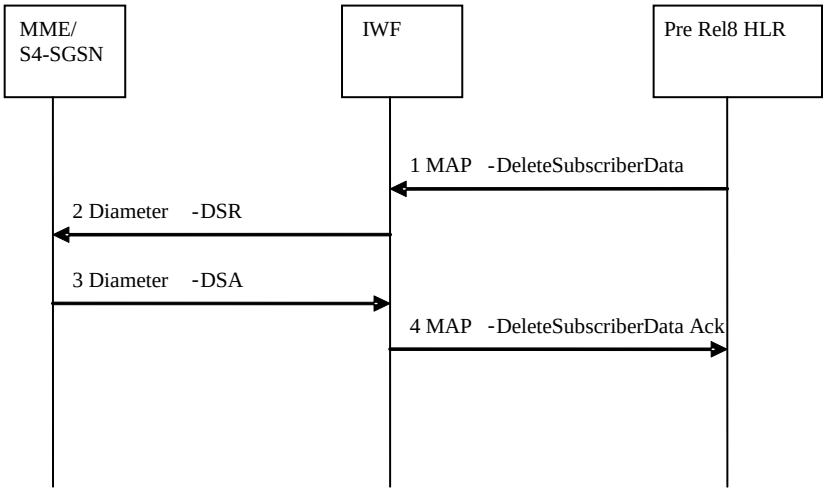

Figure 5.1.3-1: Delete Subscriber Data procedure interworking via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The Pre Rel8 HLR sends a MAP- DeleteSubscriberData (containing the IMSI, GPRS User Data) message to the IWF.

2. The IWF maps this MAP- DeleteSubscriberData message to a Diameter-DSR message (see section 6.12 for more details). Then the IWF sends this Diameter-DSR (IMSI, GPRS User Data) message to the MME/S4-SGSN. The MME/S4-SGSN needs to do the user data mapping function to get the EPS user data.

3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-DSA message to the IWF.

4. The IWF maps this Diameter-DSA message to a MAP- DeleteSubscriberData Ack message (see section 6.13 for more details). Then the IWF sends this MAP- DeleteSubscriberData Ack message to the Pre Rel8 HLR. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6].

5.1.4 Purge procedure

This section describes Purge procedure based on scenario described in section 4.1. This procedure is to inform the Pre Rel8 HLR that the subscriber Data and the MM context is deleted in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

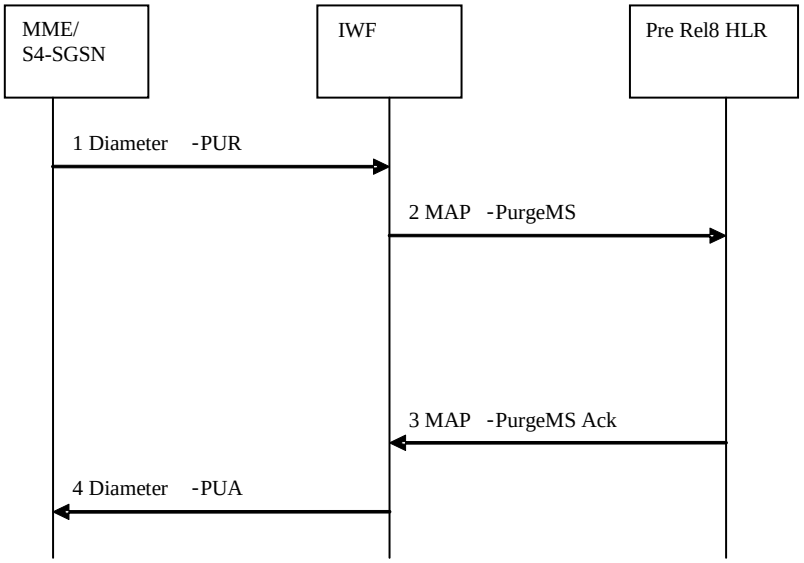

Figure 5.1.4-1: Purge procedure interworking via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-PUR (containing the IMSI) message to the IWF.
2. The IWF maps this Diameter-PUR message to a MAP- PurgeMS message (see section 6.15 for more details). Then the IWF sends this MAP-PurgeMS (IMSI) message to the Pre Rel8 HLR.
3. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6]. The Pre Rel8 HLR then sends a MAP- PurgeMS Ack message to the IWF.
4. The IWF maps this MAP- PurgeMS Ack message to a Diameter-PUA message (see section 6.18 for more details). Then the IWF sends this Diameter-PUA message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.1.5 Authentication procedure

This section describes Authentication procedure based on scenario described in section 4.1. This procedure is to authenticate an UE, which is detailed described in 3GPP TS 33.401 [4].

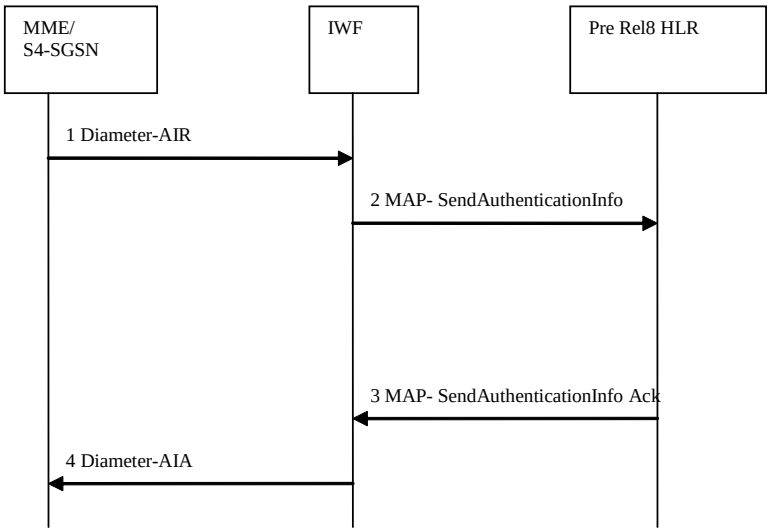

Figure 5.1.5-1: Authentication procedure interworking via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-AIR (containing the IMSI, SN identity, Requesting Node Type) message to the IWF.

2. The IWF maps this Diameter-AIR message to a MAP- SendAuthenticationInfo message (see section 6.19 for more details). Then the IWF sends this MAP- SendAuthenticationInfo (IMSI) message to the Pre Rel8 HLR.

3. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6]. The Pre Rel8 HLR then sends a MAP- SendAuthenticationInfo Ack message to the IWF.

4. The IWF maps this MAP- SendAuthenticationInfo Ack message to a Diameter-AIA message (see section 6.21 for more details). Then the IWF sends this Diameter-AIA message (MME/S4-SGSN Security context(s)) to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.1.6 Cancel Location procedure

This section describes Cancel Location procedure based on scenario described in section 4.1. In this procedure, the MME/S4-SGSN is deregistered in the Pre Rel8 HLR and the MM context and the Bearer Context are deleted in the MME/S4-SGSN. This procedure is a part of E-UTRAN Initial Attach procedure or Tracking Area Update procedure or Pre Rel8 HLR-initiated Detach procedure, which are detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

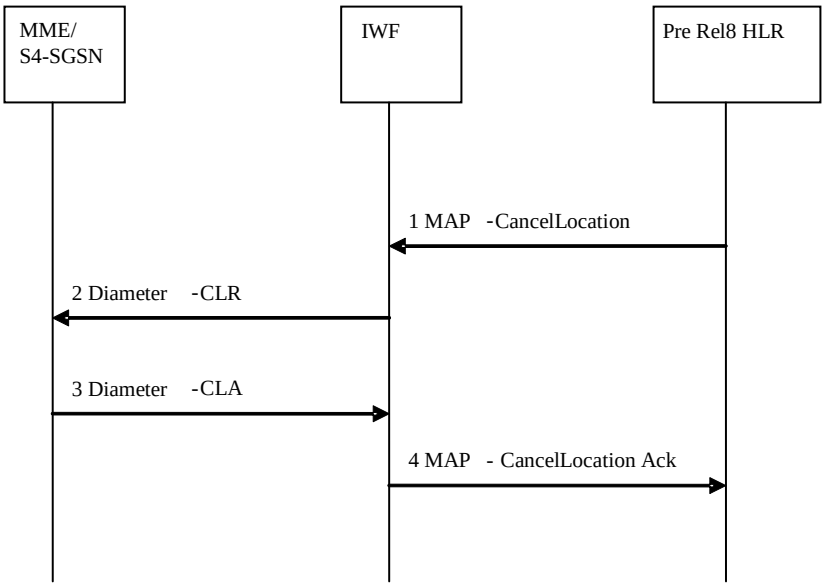

Figure 5.1.6-1: Cancel Location procedure interworking via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The Pre Rel8 HLR sends a MAP- CancelLocation (containing the IMSI, Cancellation Type) message to the IWF.

2. The IWF maps this MAP- CancelLocation message to a Diameter-CLR message (see section 6.24 for more details). Then the IWF sends this Diameter-CLR (containing the IMSI, Cancellation Type) message to the MME/S4-SGSN.

3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-CLA message to the IWF.

4. The IWF maps this Diameter-CLA message to a MAP- CancelLocation Ack message (see section 6.25 for more details). Then the IWF sends this MAP- CancelLocation Ack message to the Pre Rel8 HLR. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6].

5.1.7 Reset procedure

This section describes Reset procedure based on scenario described in section 4.1. This procedure is to inform the MME/S4-SGSN the resetting of the Pre Rel8 HLR, which is detailed described in 3GPP TS 29.272 [5] and Pre Rel8 version of 3GPP TS 29.002 [6].

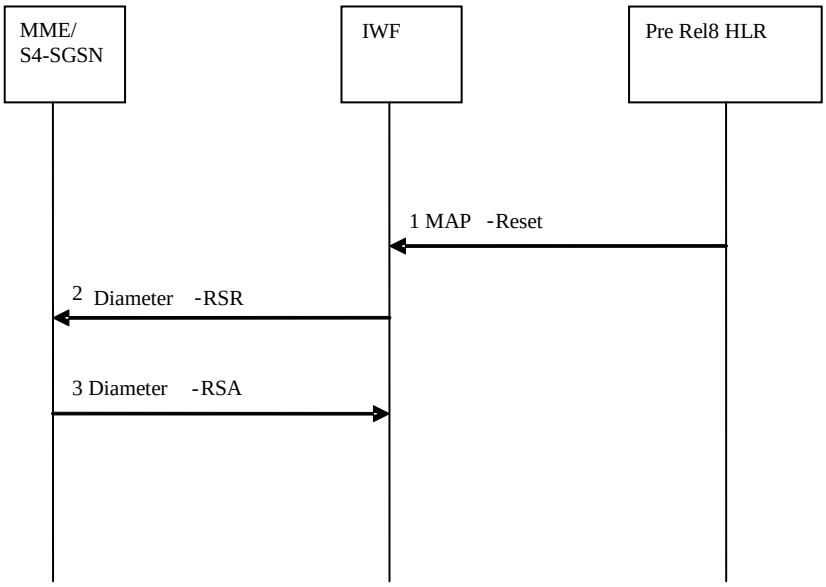

Figure 5.1.7-1: Reset procedure interworking via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The Pre Rel8 HLR sends a MAP- Reset (containing the Pre Rel8 HLR ID) message to the IWF.
2. The IWF maps this MAP- Reset message to a Diameter-RSR message (see section 6.28 for more details). Then the IWF sends this Diameter-RSR (Pre Rel8 HLR ID) message to the MME/S4-SGSN.
3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-RSA message to the IWF.

5.1.8 Notification procedure

This section describes Notification procedure based on scenario described in section 4.2. This procedure is to inform the Pre Rel8 HLR the change of the ME Identity or the assignment of the PDN GW, which is detailed described in 3GPP TS 29.272 [5].

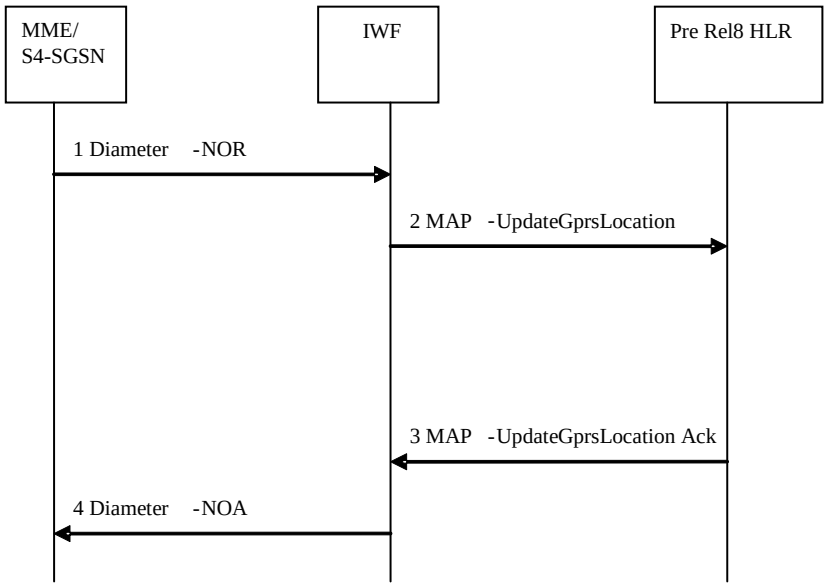

Figure 5.1.8-1: Notification procedure interworking via one IWF between MME/S4-SGSN and Pre Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-NOR (containing the IMSI, ME Identity, PDN GW Identity, APN) message to the IWF.
2. The IWF maps this Diameter-NOR message to a MAP- UpdateGprsLocation message (see section 6.29 for more details). Then the IWF sends this MAP- UpdateGprsLocation (IMSI) message to the Pre Rel8 HLR.
3. The corresponding Pre Rel8 HLR behaviour is the same as described in Pre Rel8 version of 3GPP TS 29.002 [6]. The Pre Rel8 HLR then sends a MAP- UpdateGprsLocation Ack message to the IWF.
4. The IWF maps this MAP- UpdateGprsLocation Ack message to a Diameter-NOA message (see section 6.31 for more details). Then the IWF sends this Diameter-NOA message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.1A The Procedure Mapping for Scenario Two

5.1A.1 ME Identity Check Procedure

This section describes ME identity check procedure based on the scenario described in section 4.1A. In this procedure, the ME identity can be checked between MME/S4-SGSN and Pre Rel8 EIR, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

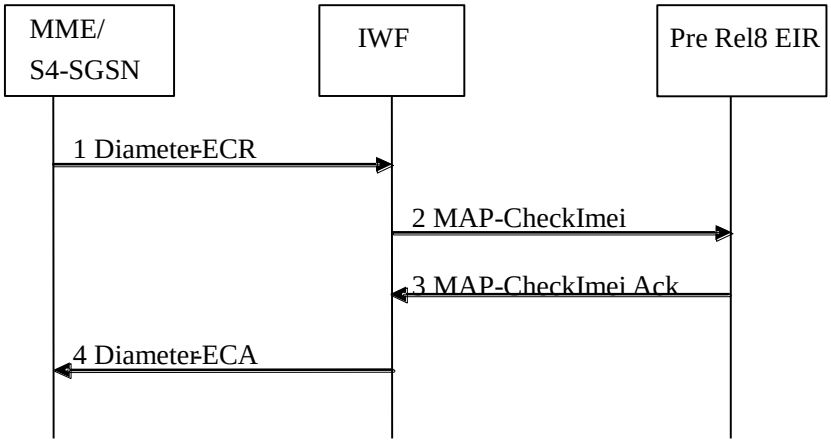

Figure 5.1A.1-1: ME Identity Check via one IWF between MME/S4-SGSN and Pre Rel8 EIR

1. The MME/S4-SGSN sends a Diameter-ECR (containing IMSI, ME Identity) message to the IWF.
2. The IWF maps this Diameter-ECR message to a MAP-CheckImei message (see section 6.33 for more details). Then the IWF sends this MAP-CheckImei (containing IMSI, IMEISV) message to Pre Rel8 EIR.
3. The corresponding Pre Rel8 EIR behaviour is the same as described in 3GPP TS 29.002 [6]. The Pre Rel8 EIR then sends a MAP-CheckImei Ack message to the IWF.
4. The IWF maps this MAP-CheckImei Ack message to a Diameter-ECA message (see section 6.34 for more details). Then the IWF sends this Diameter-ECA message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.2 The Procedure Mapping for Scenario Three

5.2.1 Update location and Insert Subscriber Data Procedure

This section describes registration procedure based on the scenario described in section 4.2. In this procedure, the MME/S4-SGSN is registered in the Rel8 HLR and the subscriber data is sent to the MME/S4-SGSN. This procedure is part of the E-UTRAN Initial Attach procedure or UTRAN/GERAN Initail Attach procedure with S4-SGSN or Tracking Area Update procedure or Routing Area Update procedure with S4-SGSN, which are detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

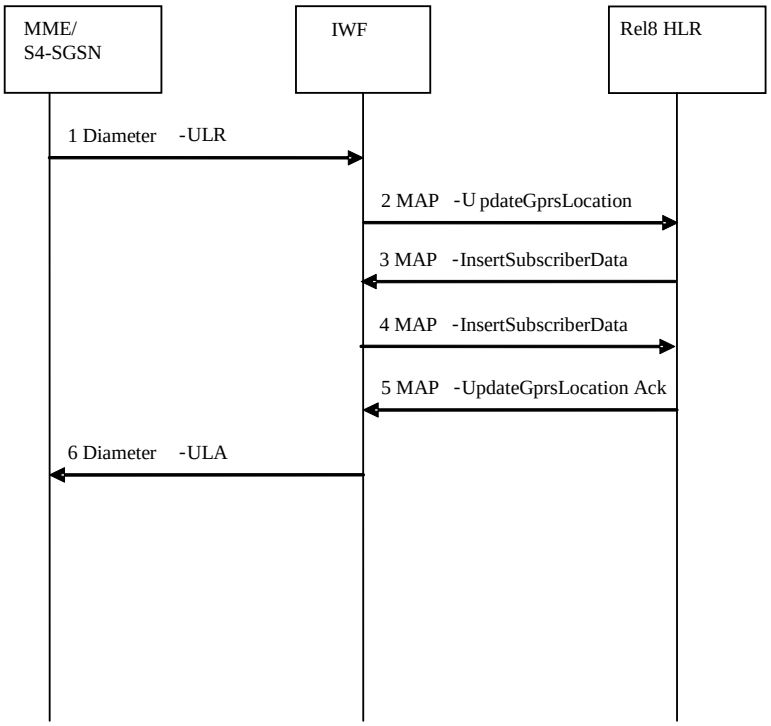

Figure 5.2.1-1: Update location and Insert Subscriber Data Procedure via one IWF between MME/S4-SGSN and Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-ULR (containing the MME/S4-SGSN Identity, IMSI, ME Identity, List of MME/S4-SGSN Supported Features) message to the IWF.

2. The IWF maps this Diameter-ULR message to a MAP-UpdateGprsLocation message (see section 6.2 for more details). Then the IWF sends this MAP-UpdateGprsLocation (containing the SGSN Identity, IMSI, IMEISV) message to Rel8 HLR.

3. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.002 [6]. The Rel8 HLR then sends a MAP-InsertSubscriberData (containing the IMSI, User Data) message to the IWF. Sending of MAP InsertSubscriberData may be skipped by the HLR if a "skip subscriber data" indication was received in the MAP UpdateGprsLocation message. This message might be segmented if the complete GPRS User Data can not be sent in one MAP message. Segmentation is not shown in figure 5.2.1-1. Note that segmentation of MAP InsertSubscriberData messages may be done in acknowledge mode or in burts mode.

4. The IWF memorizes the received User Data. The IWF sends a MAP-InsertSubscriberData Ack message to the Rel8 HLR as the response to each related request message.

5. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.002 [6]. After receiving all of the MAP-InsertSubscriberData Ack messages, the Rel8 HLR structures and then sends a MAP-UpdateGprsLocation Ack message to the IWF.

6. After receiving the MAP-UpdateGprsLocation Ack messages, the IWF structures the Complete User Data based on the memorized information. The IWF structures (see section 6.6 for more details) and then sends a Diameter-ULA (Complete User Data) message to the MME/S4-SGSN. The MME/S4-SGSN may need to do the user data mapping function to get the EPS user data if it is not received. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.2.2 Insert Subscriber Data procedure

This section describes Insert Subscriber Data procedure based on scenario described in section 4.2. This procedure is to add or modify the subscriber Data in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

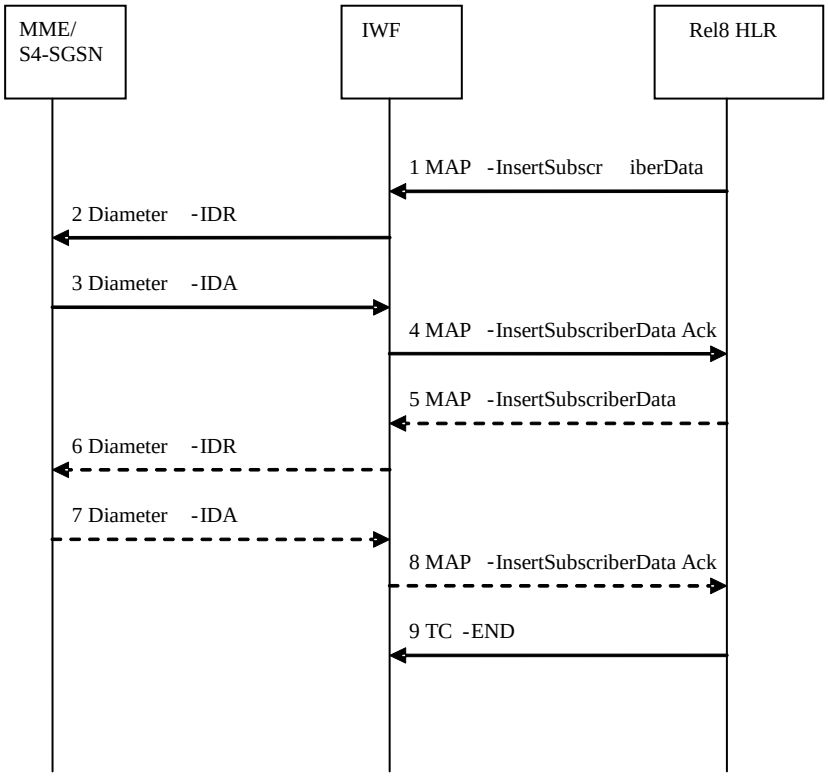

Figure 5.2.2-1: Insert Subscriber Data procedure interworking via one IWF between MME/S4-SGSN and Rel8 HLR

1. The Rel8 HLR sends a MAP-InsertSubscriberData (IMSI, User Data) message to the IWF.

2. The IWF maps this MAP- InsertSubscriberData message to a Diameter-IDR message (see section 6.8 for more details). Then the IWF sends this Diameter-IDR (containing the IMSI, user Data) message to the MME/S4-SGSN. The MME/S4-SGSN may need to do the user data mapping function to get the EPS user data if it is not received.

3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-IDA message to the IWF.

4. The IWF maps this Diameter-IDA message to a MAP- InsertSubscriberData Ack message (see section 6.9 for more details). Then the IWF sends this MAP- InsertSubscriberData Ack message to the Rel8 HLR.

5-8. If the User Data can not be sent in one MAP message, the steps 1-4 may be repeated based on the segmentation of the MAP message. Note that segmentation of MAP InsertSubscriberData messages may be done in acknowledge mode or in burts mode.

9. After receiving all of the MAP-InsertSubscriberData Ack messages, the Rel8 HLR sends a TC-END message to the IWF. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.002 [6].

5.2.3 Delete Subscriber Data procedure

This section describes Delete Subscriber Data procedure based on scenario described in section 4.2. This procedure is to delete the subscriber Data in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

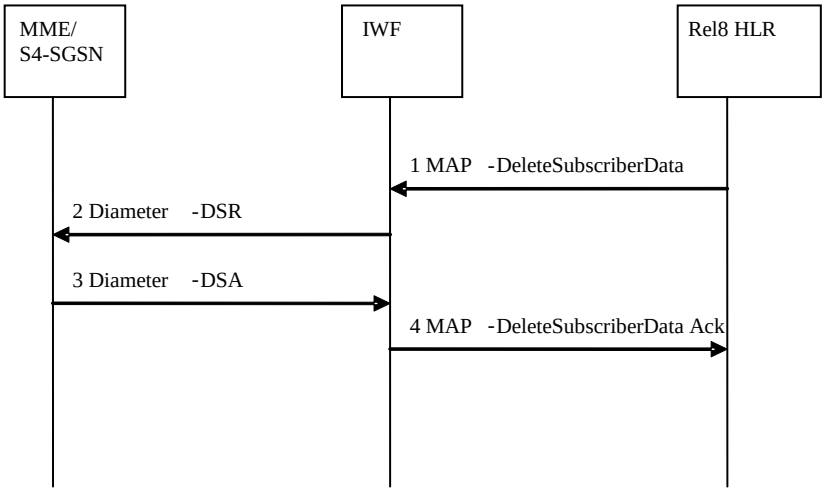

Figure 5.2.3-1: Delete Subscriber Data procedure interworking via one IWF between MME/S4-SGSN and Rel8 HLR

1. The Rel8 HLR sends a MAP- DeleteSubscriberData (containing the IMSI, User Data) message to the IWF.
2. The IWF maps this MAP- DeleteSubscriberData message to a Diameter-DSR message (see section 6.12 for more details). Then the IWF sends this Diameter-DSR (IMSI, User Data) message to the MME/S4-SGSN. The MME/S4-SGSN may need to do the user data mapping function to get the EPS user data if it is not received.
3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-DSA message to the IWF.
4. The IWF maps this Diameter-DSA message to a MAP- DeleteSubscriberData Ack message (see section 6.13 for more details). Then the IWF sends this MAP- DeleteSubscriberData Ack message to the Rel8 HLR. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.002 [6].

5.2.4 Purge procedure

This section describes Purge procedure based on scenario described in section 4.2. This procedure is to inform the Rel8 HLR that the subscriber Data and the MM context is deleted in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

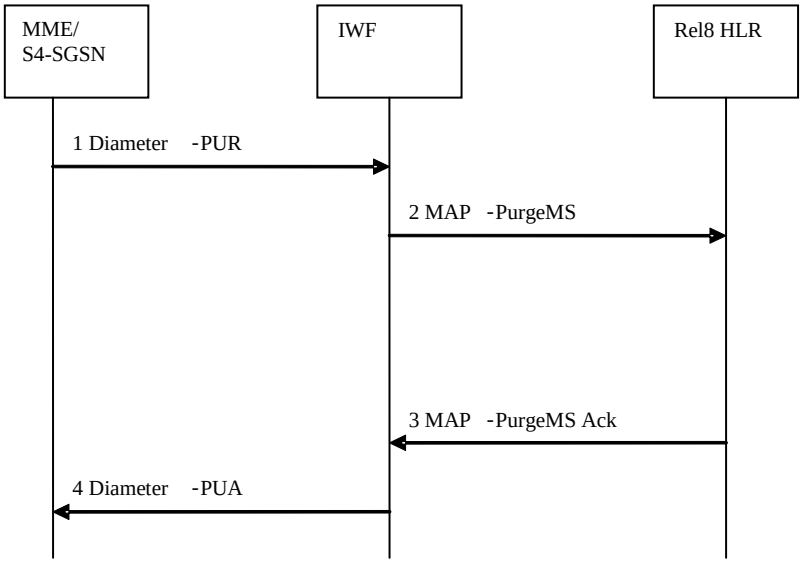

Figure 5.2.4-1: Purge procedure interworking via one IWF between MME/S4-SGSN and Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-PUR (containing the IMSI) message to the IWF.
2. The IWF maps this Diameter-PUR message to a MAP- PurgeMS message (see section 6.15 for more details). Then the IWF sends this MAP-PurgeMS (IMSI) message to the Rel8 HLR.
3. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.002 [6]. The Rel8 HLR then sends a MAP- PurgeMS Ack message to the IWF.
4. The IWF maps this MAP- PurgeMS Ack message to a Diameter-PUA message (see section 6.18 for more details). Then the IWF sends this Diameter-PUA message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.2.5 Authentication procedure

This section describes Authentication procedure based on scenario described in section 4.2. This procedure is to authenticate an UE, which is detailed described in 3GPP TS 33.401 [4].

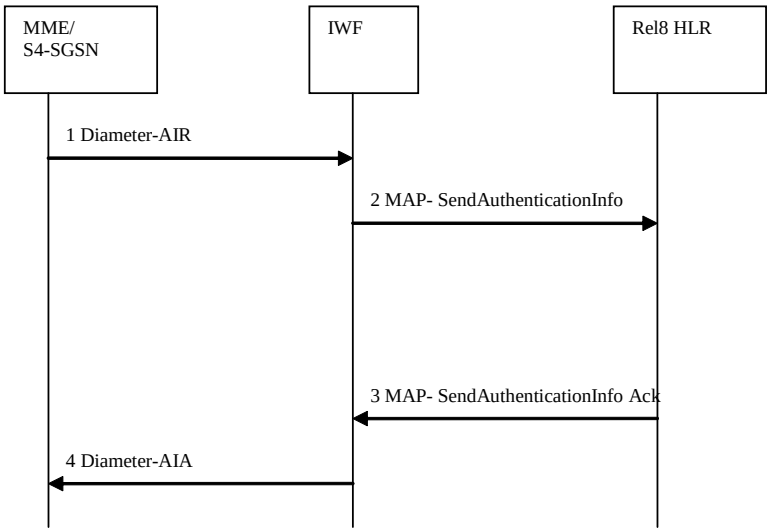

Figure 5.2.5-1: Authentication procedure interworking via one IWF between MME/S4-SGSN and Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-AIR (containing the IMSI, SN identity, Requesting Node Type) message to the IWF.

2. The IWF maps this Diameter-AIR message to a MAP- SendAuthenticationInfo message (see section 6.19 for more details). Then the IWF sends this MAP- SendAuthenticationInfo (IMSI) message to the Rel8 HLR.

3. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.002 [6]. The Rel8 HLR then sends a MAP- SendAuthenticationInfo Ack message to the IWF.

4. The IWF maps this MAP- SendAuthenticationInfo Ack message to a Diameter-AIA message (see section 6.21 for more details). Then the IWF sends this Diameter-AIA message (MME/S4-SGSN Security context(s)) to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.2.6 Cancel Location procedure

This section describes Cancel Location procedure based on scenario described in section 4.2. In this procedure, the MME/S4-SGSN is deregistered in the Rel8 HLR and the MM context and the Bearer Context are deleted in the MME/S4-SGSN. This procedure is a part of E-UTRAN Initial Attach procedure or Tracking Area Update procedure or Rel8 HLR-initiated Detach procedure, which are detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

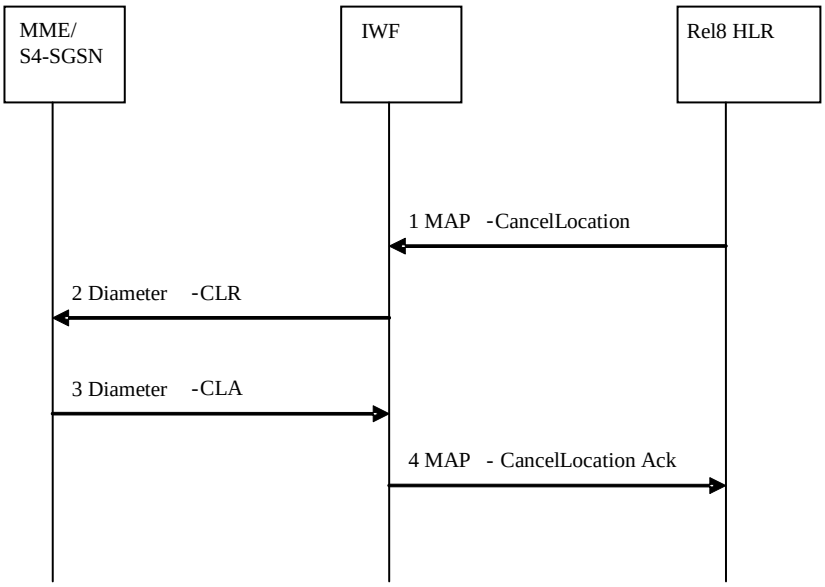

Figure 5.2.6-1: Cancel Location procedure interworking via one IWF between MME/S4-SGSN and Rel8 HLR

1. The Rel8 HLR sends a MAP- CancelLocation (containing the IMSI, Cancellation Type) message to the IWF.

2. The IWF maps this MAP- CancelLocation message to a Diameter-CLR message (see section 6.24 for more details). Then the IWF sends this Diameter-CLR (containing the IMSI, Cancellation Type) message to the MME/S4-SGSN.

3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-CLA message to the IWF.

4. The IWF maps this Diameter-CLA message to a MAP- CancelLocation Ack message (see section 6.25 for more details). Then the IWF sends this MAP- CancelLocation Ack message to the Rel8 HLR. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.272 [5].

5.2.7 Reset procedure

This section describes Reset procedure based on scenario described in section 4.2. This procedure is to inform the MME/S4-SGSN the resetting of the Rel8 HLR, which is detailed described in 3GPP TS 29.272 [5] and 3GPP TS 29.002 [6].

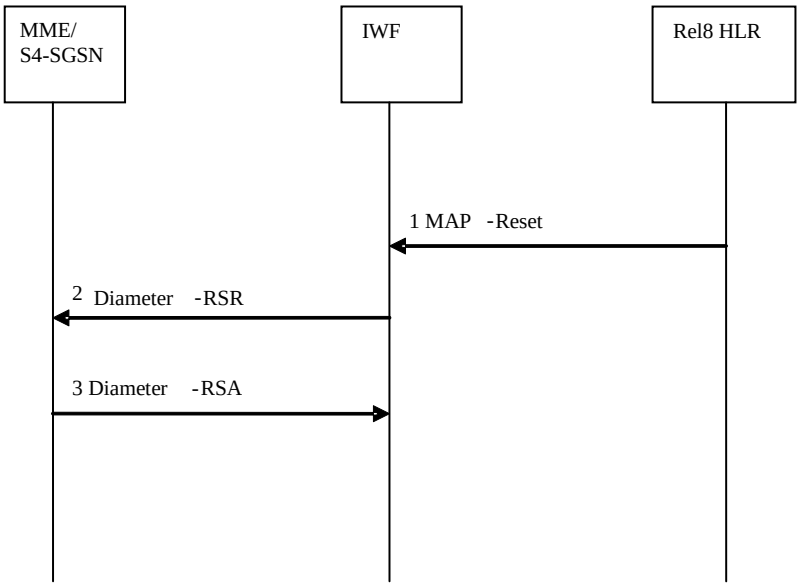

Figure 5.2.7-1: Reset procedure interworking via one IWF between MME/S4-SGSN and Rel8 HLR

1. The Rel8 HLR sends a MAP- Reset (containing the Rel8 HLR ID) message to the IWF.
2. The IWF maps this MAP- Reset message to a Diameter-RSR message (see section 6.28 for more details). Then the IWF sends this Diameter-RSR (Rel8 HLR ID) message to the MME/S4-SGSN.
3. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-RSA message to the IWF.

5.2.8 Notification procedure

This section describes Notification procedure based on scenario described in section 4.2. This procedure is to inform the Rel8 HLR the change of the ME Identity or the assignment of the PDN GW, which is detailed described in 3GPP TS 29.272 [5].

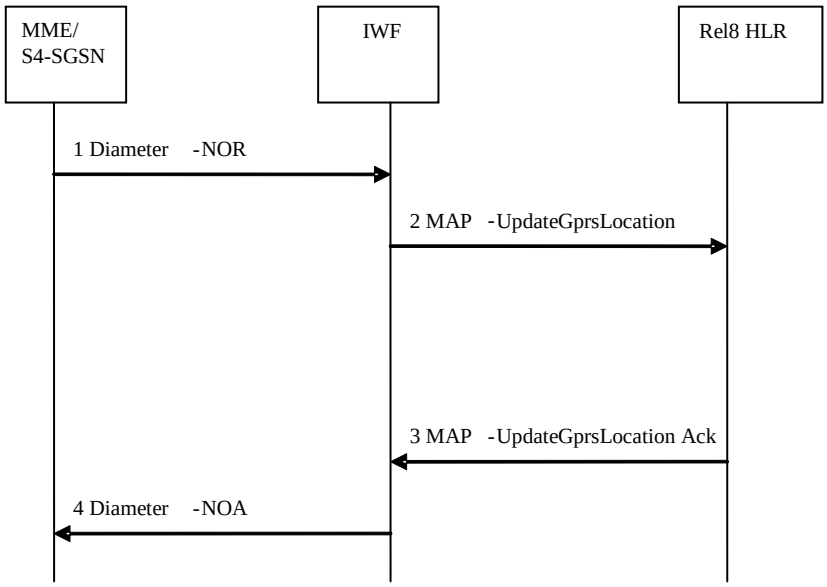

Figure 5.2.8-1: Notification procedure interworking via one IWF between MME/S4-SGSN and Rel8 HLR

1. The MME/S4-SGSN sends a Diameter-NOR (containing the IMSI, ME Identity, PDN GW Identity, APN) message to the IWF.

2. The IWF maps this Diameter-NOR message to a MAP- UpdateGprsLocation message (see section 6.29 for more details). Then the IWF sends this MAP- UpdateGprsLocation (IMSI) message to the Rel8 HLR.

3. The corresponding Rel8 HLR behaviour is the same as described in 3GPP TS 29.002 [6]. The Rel8 HLR then sends a MAP- UpdateGprsLocation Ack message to the IWF.

4. The IWF maps this MAP- UpdateGprsLocation Ack message to a Diameter-NOA message (see section 6.31 for more details). Then the IWF sends this Diameter-NOA message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.3 The Procedure Mapping for Scenario Four

5.3.1 Update location and Insert Subscriber Data Procedure

This section describes registration procedure based on the scenario described in section 4.3. In this procedure, the MME/S4-SGSN is registered in the Rel8 HSS-MME/ Rel8 HSS-SGSN and the subscriber data is sent to the MME/S4-SGSN. This procedure is part of the E-UTRAN Initial Attach procedure or or UTRAN/GERAN Initail Attach procedure with S4-SGSN or Tracking Area Update procedure or Routing Area Update procedure with S4-SGSN, which are detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

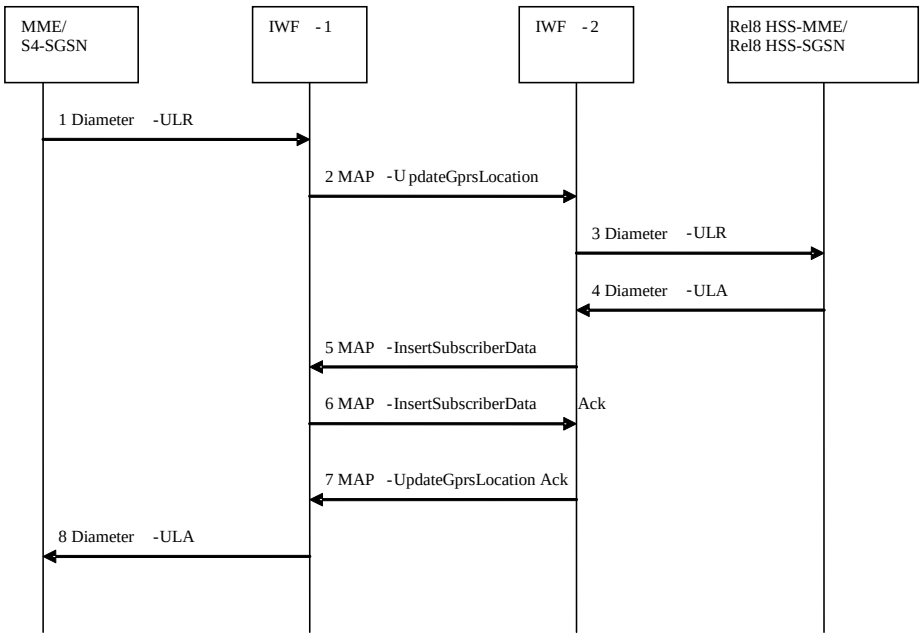

Figure 5.3.1-1: Update location and Insert Subscriber Data Procedure via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/ Rel8 HSS-SGSN

1. The MME/S4-SGSN sends a Diameter-ULR (containing the MME/S4-SGSN Identity, IMSI, ME Identity, List of MME/S4-SGSN Supported Features) message to the IWF-1.

2. The IWF-1 maps this Diameter-ULR message to a MAP-UpdateGprsLocation message (see section 6.2 for more details). Then the IWF-1 sends this MAP-UpdateGprsLocation (containing the MME/S4-SGSN Identity, IMSI, ME Identity, List of MME/S4-SGSN Supported Features) message to IWF-2.

3. The IWF-2 maps this MAP-UpdateGprsLocation message to a Diameter-ULR message (see section 6.3 for more details). Then the IWF-2 sends this Diameter-ULR (containing the MME/S4-SGSN Identity, IMSI, ME Identity, List of MME/S4-SGSN Supported Features) message to the Rel8 HSS-MME/Rel8 HSS-SGSN.

4. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The Rel8 HSS-MME/Rel8 HSS-SGSN then sends a Diameter-ULA (Complete User Data) message to the IWF-2.

5. Based on the received complete User Data, the IWF-2 structures (see section 6.4 for more details) and sends a MAP-InsertSubscriberData (containing the IMSI, User Data) message to the IWF-1. Sending of MAP InsertSubscriberData may be skipped by the HLR if a "skip subscriber data" indication was received in the MAP UpdateGprsLocation message. This message might be segmented if the complete GPRS User Data can not be sent in one MAP message. Segmentation is not shown in figure 5.3.1-1. Note that segmentation of MAP InsertSubscriberData messages may be done in acknowledge mode or in burts mode.

6. The IWF-1 memorizes the received User Data. The IWF-1 sends a MAP-InsertSubscriberData Ack message to the IWF-2 as the response to each related request message.

7. After receiving all of the MAP-InsertSubscriberData Ack messages, the IWF-2 structures (see section 6.5 for more details) and then sends a MAP-UpdateGprsLocation Ack message to the IWF-1.

8. After receiving the MAP-UpdateGprsLocation Ack messages, the IWF-1 structures the Complete User Data based on the memorized information. The IWF-1 structures (see section 6.6 for more details) and then sends a Diameter-ULA (Complete User Data) message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.3.2 Insert Subscriber Data procedure

This section describes Insert Subscriber Data procedure based on scenario described in section 4.3. This procedure is to add or modify the subscriber Data in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

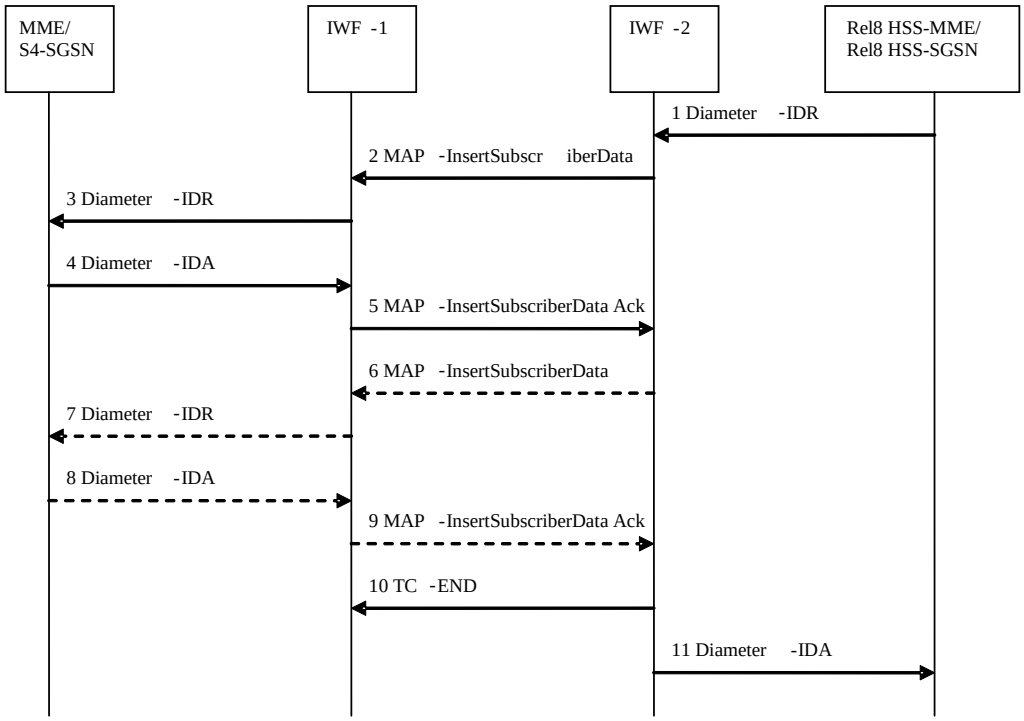

Figure 5.3.2-1: Insert Subscriber Data procedure interworking via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/Rel8 HSS-SGSN

1. The Rel8 HSS-MME/Rel8 HSS-SGSN sends a Diameter-IDR (containing the IMSI, User Data) message to the IWF-2. The Rel8 HSS-MME/Rel8 HSS-SGSN shall take into account the MME/S4-SGSN's supported features as reported in previous ULR when constructing the User Data.

2. The IWF-2 maps this Diameter-IDR message to a MAP- InsertSubscriberData message (see section 6.7 for more details). Then the IWF-2 sends this MAP-InsertSubscriberData (IMSI, User Data) message to the IWF-1.

3. The IWF-1 maps this MAP- InsertSubscriberData message to a Diameter-IDR message (see section 6.8 for more details). Then the IWF-1 sends this Diameter-IDR (containing the IMSI, User Data) message to the MME/S4-SGSN.

4. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-IDA message to the IWF-1.

5. The IWF-1 maps this Diameter-IDA message to a MAP- InsertSubscriberData Ack message (see section 6.9 for more details). Then the IWF-1 sends this MAP- InsertSubscriberData Ack message to the IWF-2.

6-9. If the EPS User Data received in step 1 can not be sent in one MAP message, the steps 2-5 may be repeated based on the segmentation of the MAP message. Note that segmentation of MAP InsertSubscriberData messages may be done in acknowledge mode or in burts mode.

10. After receiving all of the MAP-InsertSubscriberData Ack messages, the IWF-2 sends a TC-END message to the IWF-1.

11. After receiving all of the MAP-InsertSubscriberData Ack messages, the IWF-2 maps the last MAP-InsertSubscriberData Ack message to a Diameter-IDA message (see section 6.10 for more details). Then the IWF-2 sends this Diameter-IDA message to the Rel8 HSS-MME/Rel8 HSS-SGSN. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.3.3 Delete Subscriber Data procedure

This section describes Delete Subscriber Data procedure based on scenario described in section 4.3. This procedure is to delete the subscriber Data in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

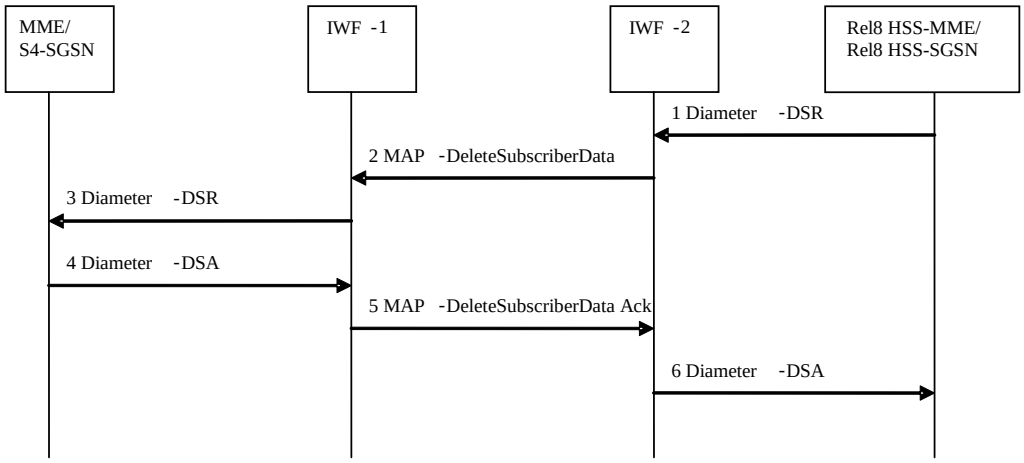

Figure 5.3.3-1: Delete Subscriber Data procedure interworking via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/Rel8 HSS-SGSN

1. The Rel8 HSS-MME/Rel8 HSS-SGSN sends a Diameter-DSR (containing the IMSI, User Data) message to the IWF-2.

2. The IWF-2 maps this Diameter-DSR message to a MAP- DeleteSubscriberData message (see section 6.11 for more details). Then the IWF-2 sends this MAP- DeleteSubscriberData (containing the IMSI, User Data) message to the IWF-1.

3. The IWF-1 maps this MAP- DeleteSubscriberData message to a Diameter-DSR message (see section 6.12 for more details). Then the IWF-1 sends this Diameter-DSR (IMSI, User Data) message to the MME/S4-SGSN.

4. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-DSA message to the IWF-1.

5. The IWF-1 maps this Diameter-DSA message to a MAP- DeleteSubscriberData Ack message (see section 6.13 for more details). Then the IWF-1 sends this MAP- DeleteSubscriberData Ack message to the IWF-2.

6. The IWF-2 maps this MAP- DeleteSubscriberData Ack message to a Diameter-DSA message (see section 6.14 for more details). Then the IWF-2 sends this Diameter-DSA message to the Rel8 HSS-MME/Rel8 HSS-SGSN. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.3.4 Purge procedure

This section describes Purge procedure based on scenario described in section 4.3. This procedure is to inform the Rel8 HSS-MME/Rel8 HSS-SGSN that the subscriber Data and the MM context is deleted in the MME/S4-SGSN, which is detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

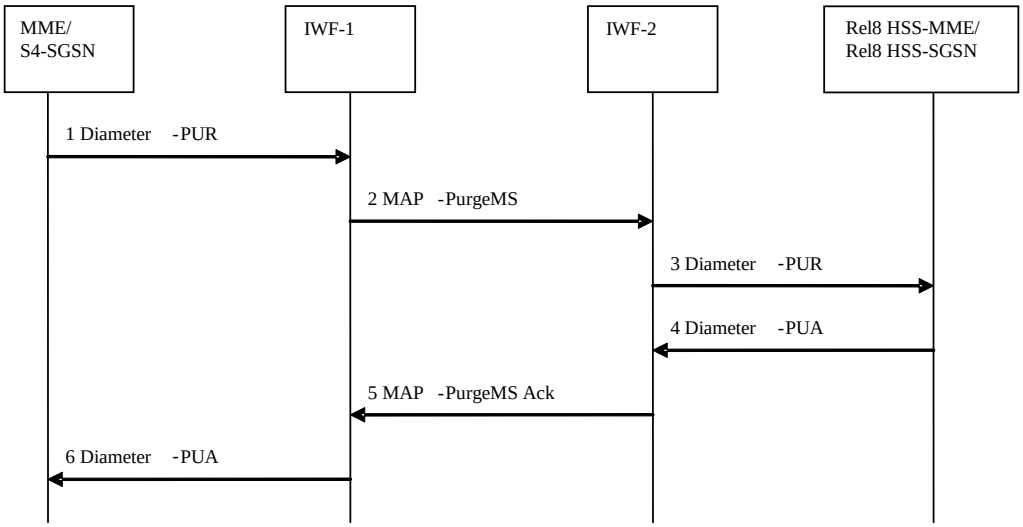

Figure 5.3.4-1: Purge procedure interworking via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/Rel8 HSS-SGSN

1. The MME/S4-SGSN sends a Diameter-PUR (containing the IMSI) message to the IWF-1.
2. The IWF-1 maps this Diameter-PUR message to a MAP- PurgeMS message (see section 6.15 for more details). Then the IWF-1 sends this MAP-PurgeMS (IMSI) message to the IWF-2.
3. The IWF-2 maps this MAP- PurgeMS message to a Diameter-PUR message (see section 6.16 for more details). Then the IWF-2 sends this Diameter-PUR (IMSI) message to the Rel8 HSS-MME/Rel8 HSS-SGSN.
4. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The Rel8 HSS-MME/Rel8 HSS-SGSN then sends a Diameter-PUA message to the IWF-2.
5. The IWF-2 maps this Diameter-PUA message to a MAP- PurgeMS Ack message (see section 6.17 for more details). Then the IWF-2 sends this MAP-PurgeMS Ack message to the IWF-1.
6. The IWF-1 maps this MAP- PurgeMS Ack message to a Diameter-PUA message (see section 6.18 for more details). Then the IWF-1 sends this Diameter-PUA message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.3.5 Authentication procedure

This section describes Authentication procedure based on scenario described in section 4.3. This procedure is to authenticate an UE, which is detailed described in 3GPP TS 33.401 [4].

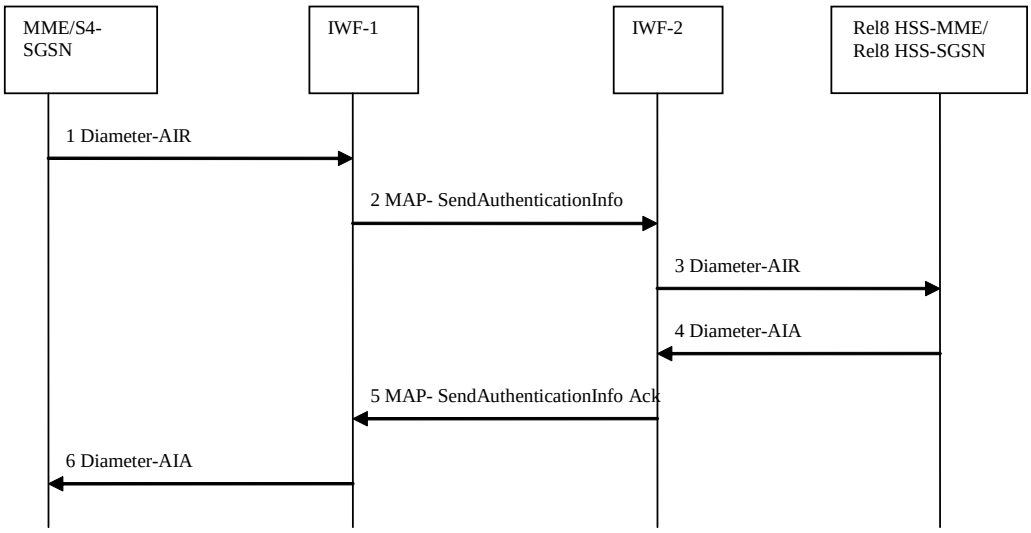

Figure 5.3.5-1: Authentication procedure interworking via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/Rel8 HSS-SGSN

1. The MME/S4-SGSN sends a Diameter-AIR (containing the IMSI, SN identity, Requesting Node Type) message to the IWF-1.

2. The IWF-1 maps this Diameter-AIR message to a MAP- SendAuthenticationInfo message (see section 6.19 for more details). Then the IWF-1 sends this MAP- SendAuthenticationInfo (IMSI, SN identity, Requesting Node Type) message to the IWF-2.

3. The IWF-2 maps this MAP- SendAuthenticationInfo message to a Diameter-AIR message (see section 6.20 for more details). Then the IWF-2 sends this Diameter-AIR (containing the IMSI, SN identity, Requesting Node Type) message to the Rel8 HSS-MME/Rel8 HSS-SGSN.

4. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The Rel8 HSS-MME/Rel8 HSS-SGSN then sends a Diameter-AIA (MME/S4-SGSN Security context(s)) message to the IWF-2.

5. The IWF-2 maps this Diameter-AIA message to a MAP- SendAuthenticationInfo Ack message (see section 6.21 for more details). Then the IWF-2 sends this MAP- SendAuthenticationInfo Ack (MME/S4-SGSN Security context(s)) message to the IWF-1.

6. The IWF-1 maps this MAP- SendAuthenticationInfo Ack message to a Diameter-AIA message (see section 6.22 for more details). Then the IWF-1 sends this Diameter-AIA message (MME/S4-SGSN Security context(s)) to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.3.6 Cancel Location procedure

This section describes Cancel Location procedure based on scenario described in section 4.3. In this procedure, the MME/S4-SGSN is deregistered in the Rel8 HSS-MME/Rel8 HSS-SGSN and the MM context and the Bearer Context are deleted in the MME/S4-SGSN. This procedure is a part of E-UTRAN Initial Attach procedure or Tracking Area Update procedure or Rel8 HSS-MME/Rel8 HSS-SGSN-initiated Detach procedure, which are detailed described in 3GPP TS 23.401 [3] and 3GPP TS 23.060 [7].

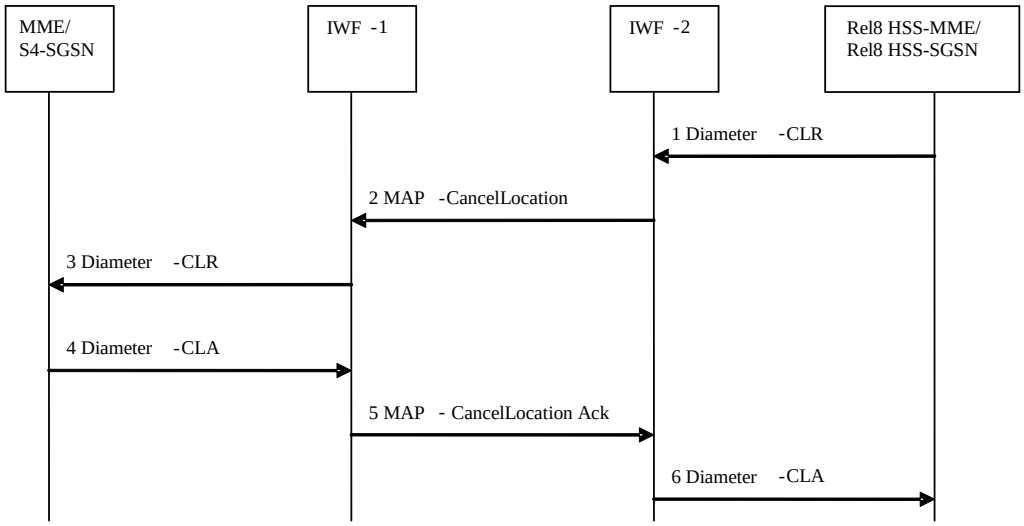

Figure 5.3.6-1: Cancel Location procedure interworking via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/Rel8 HSS-SGSN

1. The Rel8 HSS-MME/Rel8 HSS-SGSN sends a Diameter-CLR (containing the IMSI, Cancellation Type) message to the IWF-2.

2. The IWF-2 maps this Diameter-CLR message to a MAP- CancelLocation message (see section 6.23 for more details). Then the IWF-2 sends this MAP- CancelLocation (IMSI, Cancellation Type) message to the IWF-1.

3. The IWF-1 maps this MAP- CancelLocation message to a Diameter-CLR message (see section 6.24 for more details). Then the IWF-1 sends this Diameter-CLR (containing the IMSI, Cancellation Type) message to the MME/S4-SGSN.

4. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-CLA message to the IWF-1.

5. The IWF-1 maps this Diameter-CLA message to a MAP- CancelLocation Ack message (see section 6.25 for more details). Then the IWF-1 sends this MAP- CancelLocation Ack message to the IWF-2.

6. The IWF-2 maps this MAP- CancelLocation Ack message to a Diameter-CLA message (see section 6.26 for more details). Then the IWF-2 sends this Diameter-CLA message to the Rel8 HSS-MME/Rel8 HSS-SGSN. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.3.7 Reset procedure

This section describes Reset procedure based on scenario described in section 4.3. This procedure is to inform the MME/S4-SGSN the resetting of the Rel8 HSS-MME/Rel8 HSS-SGSN, which is detailed described in 3GPP TS 29.272 [5].

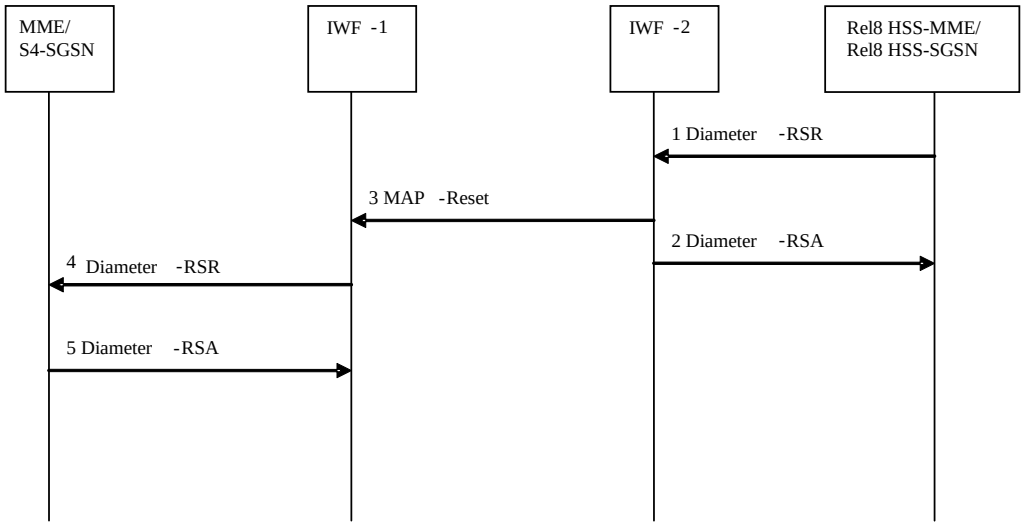

Figure 5.3.7-1: Reset procedure interworking via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/Rel8 HSS-SGSN

1. The Rel8 HSS-MME/Rel8 HSS-SGSN sends a Diameter-RSR (containing the Rel8 HSS-MME/Rel8 HSS-SGSN ID) message to the IWF-2.

2. The IWF-2 sends Diameter-RSA message to Rel8 HSS-MME/Rel8 HSS-SGSN. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

3. The IWF-2 maps this Diameter-RSR message to a MAP- Reset message (see section 6.27 for more details). Then the IWF-2 sends this MAP- Reset (containing the Rel8 HSS-MME/Rel8 HSS-SGSN ID) message to the IWF-1.

4. The IWF-1 maps this MAP- Reset message to a Diameter-RSR message (see section 6.28 for more details). Then the IWF-1 sends this Diameter-RSR (Rel8 HSS-MME/Rel8 HSS-SGSN ID) message to the MME/S4-SGSN.

5. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The MME/S4-SGSN then sends a Diameter-RSA message to the IWF-1.

5.3.8 Notification procedure

This section describes Notification procedure based on scenario described in section 4.3. This procedure is to inform the Rel8 HSS-MME/Rel8 HSS-SGSN the change of the ME Identity or the assignment of the PDN GW, which is detailed described in 3GPP TS 29.272 [5].

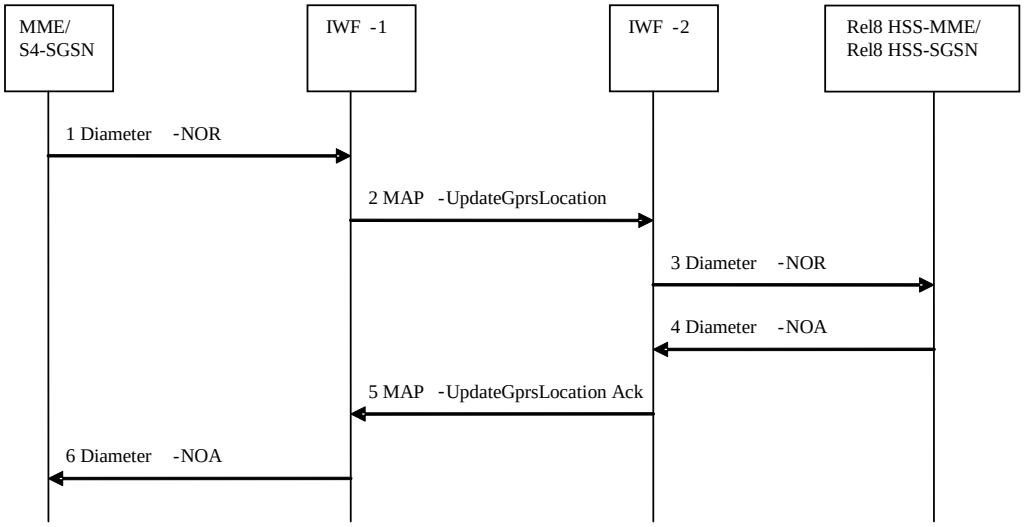

Figure 5.3.8-1: Notification procedure interworking via two IWFs between MME/S4-SGSN and Rel8 HSS-MME/Rel8 HSS-SGSN

1. The MME/S4-SGSN sends a Diameter-NOR (containing the IMSI, ME Identity, PDN GW Identity, APN) message to the IWF-1.
2. The IWF-1 maps this Diameter-NOR message to a MAP- UpdateGprsLocation message (see section 6.29 for more details). Then the IWF-1 sends this MAP- UpdateGprsLocation (IMSI, ME Identity, PDN GW Identity, APN) message to the IWF-2.
3. The IWF-2 maps this MAP- UpdateGprsLocation message to a Diameter-NOR message (see section 6.30 for more details). Then the IWF-2 sends this Diameter-NOR (containing the IMSI, ME Identity, PDN GW Identity, APN) message to the Rel8 HSS-MME/Rel8 HSS-SGSN.
4. The corresponding Rel8 HSS-MME/Rel8 HSS-SGSN behaviour is the same as described in 3GPP TS 29.272 [5]. The Rel8 HSS-MME/Rel8 HSS-SGSN then sends a Diameter-NOA message to the IWF-2.
5. The IWF-2 maps this Diameter-NOA message to a MAP- UpdateGprsLocation Ack message (see section 6.31 for more details). Then the IWF-2 sends this MAP- UpdateGprsLocation Ack message to the IWF-1.
6. The IWF-1 maps this MAP- UpdateGprsLocation Ack message to a Diameter-NOA message (see section 6.32 for more details). Then the IWF-1 sends this Diameter-NOA message to the MME/S4-SGSN. The corresponding MME/S4-SGSN behaviour is the same as described in 3GPP TS 29.272 [5].

5.4 The Procedure Mapping for Scenario Five

<This clause is to describe mapping of the procedures on functionality level>

6 The Mapping of the Parameters

6.1 General

This section is to describe the parameter mapping for each message based on the stage 3 parameters defined in 3GPP TS 29.272 [5] and 3GPP TS 29.002 [6]. The description below is based on per message mapping. In each section, the detailed behavior of IWF and the new requirement for Rel Gr are also described.

The symbol "N/A" in source message column of the tables bolow means that there is no corresponding parameter in the source message to map into the mentioned parameter in the target message. For this case, this parameter in the target message shall be either absent or structured locally by the IWF. The symbol "N/A" in target message column of the tables bolow means that some parameter carried in the source message is not needed to be mapped into the target message. For this case, this parameter in the source message shall be either ignored or saved locaolly in the IWF.

6.2 Diameter-ULR Mapping to MAP-UpdateGprsLocation

6.2.1 Mapping for Scenario One

6.2.1.1 AVP Mapping

The AVP mapping from Diameter-ULR to MAP-UpdateGprsLocation for scenario one is listed as table below:

Table 6.2.1.1-1: AVP Mapping from Diameter-ULR to MAP-UpdateGprsLocation for scenario one

MAP parameter within target UpdateGPRSLocation	S6a/S6d Diameter AVP within source ULR	Comments
Invoke Id	N/A	IWF shall allocate an Invoke Id value locally and record a mapping entity between this Invoke Id value and the Session Id value received from the Diameter message.
IMSI	User-Name	
SGSN number	N/A	See section 4A.2 for detail.
SGSN address	MME Address/S4-SGSN address	See section 4A.2 for detail.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
SoLSA Support Indicator	N/A	This parameter shall be absent.
Super-Charger Supported in Serving Network Entity	N/A	This parameter shall be absent.
GPRS enhancements support indicator	N/A	IWF shall set this parameter.
Supported LCS Capability Sets	N/A	This parameter shall be absent.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
Inform Previous Network Entity	FFS	
PS LCS Not Supported by UE	N/A	This parameter shall be absent.
V-GMLC Address	N/A	This parameter shall be absent.
Call barring support indicator	N/A	This parameter shall be absent.
IMEISV	Terminal-Information	
Skip Subscriber Data Update	FFS	
Supported RAT Types Indicator	Supported-RAT-Type	
N/A	Supported-Features	The IWF shall store supported features for later use when InsertSubscriberData Ack messages are to be sent to HLR.
N/A	ULR Flags	This parameter shall be ignored.
N/A	Visited-PLMN-Id	This parameter shall be ignored.

6.2.1.2 Detailed IWF Behaviour

6.2.1.3 New Requirements for Pre Rel8 Gr

A new code point For E-UTRAN is needed to be defined for MAP-supportedRAT-TypeIndicator.

6.2.2 Mapping for Scenario Three

6.2.2.1 AVP Mapping

The AVP mapping from Diameter-ULR to MAP-UpdateGprsLocation for scenario three is listed as table below:

Table 6.2.2.1-1: AVP Mapping from Diameter-ULR to MAP-UpdateGprsLocation for scenario three

MAP parameter within target UpdateGPRSLocation	S6a/S6d Diameter AVP within source ULR	Comments
Invoke Id	N/A	IWF shall allocate an Invoke Id value locally and record a mapping entity between this Invoke Id value and the Session Id value received from the Diameter message.
IMSI	User-Name	
SGSN number	N/A	See section 4A.2 for detail.
SGSN address	MME Address/S4-SGSN address	See section 4A.2 for detail.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
SoLSA Support Indicator	N/A	This parameter shall be absent.
Super-Charger Supported in Serving Network Entity	N/A	This parameter shall be absent.
GPRS enhancements support indicator	N/A	IWF shall set this parameter.
Supported LCS Capability Sets	N/A	This parameter shall be absent.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
Inform Previous Network Entity	FFS	
PS LCS Not Supported by UE	N/A	This parameter shall be absent.
V-GMLC Address	N/A	This parameter shall be absent.
Call barring support indicator	N/A	This parameter shall be absent.
IMEISV	Terminal-Information	
Skip Subscriber Data Update	FFS	
Supported RAT Types Indicator	Supported-RAT-Type	
N/A	Supported-Features	The IWF shall store supported features for later use when InsertSubscriberData Ack messages are to be sent to HLR.
TBD: ISR-Information; Serving Node Type Indicator	ULR Flags	
N/A	Visited-PLMN-Id	This parameter shall be ignored.

6.2.2.2 Detailed IWF Behaviour

6.2.2.3 New Requirements for Rel8 Gr

A new code point For E-UTRAN is needed to be defined for MAP-supportedRAT-TypeIndicator.

New parameters which indicate ULR flags (Single-Registration-Indication, S6a/S6d-Indicator) are needed to be defined in MAP.

6.2.3 Mapping for Scenario Four

6.2.3.1 AVP Mapping

The AVP mapping from Diameter-ULR to MAP-UpdateGprsLocation for scenario four is listed as table below:

Table 6.2.3.1-1: AVP Mapping from Diameter-ULR to MAP-UpdateGprsLocation for scenario four

MAP parameter within target UpdateGPRSLocation	S6a/S6d Diameter AVP within source ULR	Comments
Invoke Id	N/A	IWF shall allocate an Invoke Id value locally and record a mapping entity between this Invoke Id value and the Session Id value received from the Diameter message.
IMSI	User-Name	
SGSN number	N/A	See section 4A.2 for detail.
SGSN address	MME Address/S4-SGSN address	See section 4A.2 for detail.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
SoLSA Support Indicator	N/A	This parameter shall be absent.
Super-Charger Supported in Serving Network Entity	N/A	This parameter shall be absent.
GPRS enhancements support indicator	N/A	IWF shall set this parameter.
Supported LCS Capability Sets	N/A	This parameter shall be absent.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
Inform Previous Network Entity	FFS	
PS LCS Not Supported by UE	N/A	This parameter shall be absent.
V-GMLC Address	N/A	This parameter shall be absent.
Call barring support indicator	N/A	This parameter shall be absent.
IMEISV	Terminal-Information	
Skip Subscriber Data Update	FFS	
Supported RAT Types Indicator	Supported-RAT-Type	
TBD	Supported-Features	
TBD ISR-Information; Serving Node Type Indicator	ULR Flags	
N/A	Visited-PLMN-Id	This parameter shall be ignored.

6.2.3.2 Detailed IWF Behaviour

6.2.3.3 New Requirements for Rel8 Gr

A new code point For E-UTRAN is needed to be defined for MAP-supportedRAT-TypeIndicator.

A new parameter which indicates support of ODBs and ReqSubs is needed to be defined in MAP.

A new parameter which indicates supported features is needed to be defined in MAP.

New parameters which indicate ULR flags (Single-Registration-Indication, S6a/S6d-Indicator) are needed to be defined in MAP.

6.3 MAP-UpdateGprsLocation Mapping to Diameter-ULR

6.3.1 Mapping for Scenario Four

6.3.1.1 AVP Mapping

The AVP mapping from MAP-UpdateGprsLocation to Diameter-ULR for scenario four is listed as table below:

Table 6.3.1.1-1: AVP Mapping from MAP-UpdateGprsLocation to Diameter-ULR for scenario four

S6a/S6d Diameter AVP within target ULR	MAP parameter within source UpdateGPRSLocation	Comments
User-Name	IMSI	IWF shall records this parameter locally and record a mapping entity between this IMSI value and the Session Id value.
Supported-Features	TBD	
Terminal-Information	IMEISV	
Supported-RAT-Type	Supported RAT Types Indicator	
ULR Flags	TBD	
Visited-PLMN-Id	N/A	IWF shall set this parameter according to the leading digits of SGSN-Number.
N/A	Invoke Id	IWF shall allocate a Session Id value locally and record a mapping entity between this Session Id value and the Invoke Id value received from the MAP message.
N/A	SGSN number	See section 4A.2 for detail.
N/A	SGSN address	See section 4A.2 for detail.
N/A	Supported CAMEL Phases	This parameter shall be ignored.
N/A	SoLSA Support Indicator	This parameter shall be ignored.
N/A	Super-Charger Supported in Serving Network Entity	This parameter shall be ignored.
N/A	GPRS enhancements support indicator	This parameter shall be ignored.
N/A	Supported LCS Capability Sets	This parameter shall be ignored.
N/A	Offered CAMEL 4 CSIs	This parameter shall be ignored.
FFS	Inform Previous Network Entity	
N/A	PS LCS Not Supported by UE	This parameter shall be ignored.
N/A	V-GMLC Address	This parameter shall be ignored.
N/A	Call barring support indicator	This parameter shall be ignored.
N/A	Skip Subscriber Data Update	This parameter shall be ignored.

6.3.1.2 Detailed IWF Behaviour

6.3.1.3 New Requirements for S6a/S6d

6.4 Diameter-ULA Mapping to MAP-InsertSubscriberData

6.4.1 Mapping for Scenario Four

6.4.1.1 AVP Mapping

The AVP mapping from Diameter-ULA to MAP-InsertSubscriberData for scenario four is listed as table below:

Table 6.4.1.1-1: AVP Mapping from Diameter-ULA to MAP-InsertSubscriberData for scenario four

MAP parameter within target InsertSubscriberData	S6a/S6d Diameter AVP within source ULA	Comments
Invoke Id	N/A	IWF shall allocate an Invoke Id value locally and record a mapping entity between this Invoke Id value and the Session Id value received from the Diameter message.
IMSI	N/A	IWF shall set this parameter according to the Session Id value received from the Diameter message and the recorded mapping between IMSI value and the Session Id value
MSISDN	MSISDN AVP within Subscription-Data	
Category	N/A	This parameter shall be absent.
Subscriber Status	Subscriber status AVP within Subscription-Data	
Bearer service List	N/A	This parameter shall be absent.
Teleservice List	N/A	This parameter shall be absent.
Forwarding information List	N/A	This parameter shall be absent.
Call barring information List	N/A	This parameter shall be absent.
CUG information List	N/A	This parameter shall be absent.
SS-Data List	N/A	This parameter shall be absent.
eMLPP Subscription Data	N/A	This parameter shall be absent.
MC-Subscription Data	N/A	This parameter shall be absent.
Operator Determined Barring General data	Operator-Determined-Barring AVP within Subscription-Data AVP	
Operator Determined Barring HPLMN data	HPLMN-ODB AVP within Subscription-Data	
Roaming Restriction Due To Unsupported Feature	N/A	This parameter shall be absent.
Regional Subscription Data	Regional-Subscription-Zone-Code AVPs within Subscription-Data	
VLR CAMEL Subscription Info	N/A	This parameter shall be absent.
Voice Broadcast Data	N/A	This parameter shall be absent.
Voice Group Call Data	N/A	This parameter shall be absent.
Network access mode	c	
GPRS Subscription Data	FFS	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
Roaming Restricted In SGSN Due To Unsupported Feature	FFS: Access-Restriction-Data AVP within Subscription-Data	FFS whether the Restriction information for SGSN is the same for that of MME/S4-SGSN
North American Equal Access preferred Carrier Id List	N/A	This parameter shall be absent.
SGSN CAMEL Subscription Info	N/A	This parameter shall be absent.
LSA Information	N/A	This parameter shall be absent.
IST Alert Timer	N/A	This parameter shall be absent.

LMU Identifier	N/A	This parameter shall be absent.
LCS Information	N/A	This parameter shall be absent.
CS Allocation/Retention priority	N/A	This parameter shall be absent.
Super-Charger Supported In HLR	N/A	This parameter shall be absent.
Subscribed Charging Characteristics	3GPP-Charging-Characteristics AVP within Subscription-Data	
Access Restriction Data	Access-Restriction-Data AVP within Subscription-Data	
TBD	Subscription-Data	IWF shall do the mapping between the MAP parameters and the following AVPs within Subscription-Data AVP: STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority.
N/A	Supported Features	This parameter shall be ignored.
N/A	Result	IWF shall map Result codes onto the appropriate MAP error (when different from "success").
N/A	ULA-Flags	The IWF shall store this AVP and use it when sending UpdateGprsLocation Ack

6.4.1.2 Detailed IWF Behaviour

6.4.1.3 New Requirements for Rel8 Gr

A new code point For E-UTRAN is needed to be defined for MAP- Access Restriction Data.

New parameters which describes STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority for EPS subscription data are needed to be defined in MAP.

6.5 Diameter-ULA Mapping to MAP-UpdateGprsLocation Ack

6.5.1 Mapping for Scenario Four

6.5.1.1 AVP Mapping

The AVP mapping from Diameter-ULA to MAP-UpdateGprsLocation Ack for scenario four is listed as table below:

Table 6.5.1.1-1: AVP Mapping from Diameter-ULA to MAP- UpdateGprsLocation Ack for scenario four

MAP parameter within target UpdateGprsLocation Ack	S6a/S6d Diameter AVP within source ULA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
ADD Capability	N/A	FFS: we need to decide which AVPs in Subscription-Data will be mapped to this parameter
HLR number	N/A	IWF shall set this parameter according to the SS7 numbering configured for this IWF.
User error	Result	
N/A	Subscription-Data	This parameter shall be ignored.
TBD	ULA-Flags	
FFS: Whether this parameter is needed for ULR.	Supported Features	

6.5.1.2 Detailed IWF Behaviour

6.5.1.3 New Requirements for Rel8 Gr

A new parameter which indicates ULA Flags (separationIndication) is needed to be defined in MAP.

FFS: A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

6.6 MAP-InsertSubscriberData and MAP-UpdateGprsLocation Ack Mapping to Diameter-ULA

6.6.1 Mapping for Scenario One

6.6.1.1 AVP Mapping

The AVP mapping from MAP-InsertSubscriberData and MAP-UpdateGprsLocation Ack to Diameter-ULA for scenario one is listed as table below:

Table 6.6.1.1-1: AVP Mapping from MAP-InsertSubscriberData and MAP-UpdateGprsLocation Ack to Diameter-ULR for scenario one

S6a/S6d Diameter AVP within target ULA	MAP parameter within source InsertSubscriberData and UpdateGprsLocation Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
Result	N/A	This parameter shall be set according to the value of User error.
ULA Flags	TBD	FFS: IWF shall set this parameter cleared.
Subscription Data	N/A	This parameter shall be absent.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	IMSI	This parameter shall be ignored.
MSISDN AVP within Subscription-Data	MSISDN	
N/A	Category	This parameter shall be ignored.
Subscriber status AVP within Subscription-Data	Subscriber Status	
N/A	Bearer service List	This parameter shall be ignored.
N/A	Teleservice List	This parameter shall be ignored.
N/A	Forwarding information List	This parameter shall be ignored.
N/A	Call barring information List	This parameter shall be ignored.
N/A	CUG information List	This parameter shall be ignored.
N/A	SS-Data List	This parameter shall be ignored.
N/A	eMLPP Subscription Data	This parameter shall be ignored.
N/A	MC-Subscription Data	This parameter shall be ignored.
Operator-Determined-Barring AVP within Subscription-Data AVP	Operator Determined Barring General data	
HPLMN-ODB AVP within Subscription-Data	Operator Determined Barring HPLMN data	
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Regional Subscription Data	.
N/A	VLR CAMEL Subscription Info	This parameter shall be ignored.
N/A	Voice Broadcast Data	This parameter shall be ignored.
N/A	Voice Group Call Data	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Network access mode	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
FFS	GPRS Subscription Data	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.

FFS: Access-Restriction-Data AVP within Subscription-Data	Roaming Restricted In SGSN Due To Unsupported Feature	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
N/A	North American Equal Access preferred Carrier Id List	This parameter shall be ignored.
N/A	SGSN CAMEL Subscription Info	This parameter shall be ignored.
N/A	LSA Information	This parameter shall be ignored.
N/A	IST Alert Timer	This parameter shall be ignored.
N/A	LMU Identifier	This parameter shall be ignored.
N/A	LCS Information	This parameter shall be ignored.
N/A	CS Allocation/Retention priority	This parameter shall be ignored.
N/A	Super-Charger Supported In HLR	This parameter shall be ignored.
3GPP-Charging-Characteristics AVP within Subscription-Data	Subscribed Charging Characteristics	
Access-Restriction-Data AVP within Subscription-Data	Access Restriction Data	
N/A	Invoke Id	This parameter shall be ignored.
FFS: we need to decide which AVPs in Subscription-Data will be mapped to this parameter	ADD Capability	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
N/A	HLR number	IWF shall record this AVP for further SS7 message sent back to the same peer.
N/A	User error	This parameter shall be ignored.

6.6.1.2 Detailed IWF Behaviour

6.6.1.3 New Requirements for S6a/S6d

6.6.2 Mapping for Scenario Three

6.6.2.1 AVP Mapping

The AVP mapping from MAP-InsertSubscriberData and MAP-UpdateGprsLocation Ack to Diameter-ULA for scenario three is listed as table below:

Table 6.6.2.1-1: AVP Mapping from MAP-InsertSubscriberData and MAP-UpdateGprsLocation Ack to Diameter-ULR for scenario three

S6a/S6d Diameter AVP within target ULA	MAP parameter within source InsertSubscriberData and UpdateGprsLocation Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
Result	N/A	This parameter shall be set according to the value of User error.
ULA Flags	TBD	FFS: IWF shall set this parameter cleared.
Subscription Data	TBD	IWF shall do the mapping between the MAP parameters and the following AVPs within Subscription-Data AVP: STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	IMSI	This parameter shall be ignored.
MSISDN AVP within Subscription-Data	MSISDN	
N/A	Category	This parameter shall be ignored.
Subscriber status AVP within Subscription-Data	Subscriber Status	
N/A	Bearer service List	This parameter shall be ignored.
N/A	Teleservice List	This parameter shall be ignored.
N/A	Forwarding information List	This parameter shall be ignored.
N/A	Call barring information List	This parameter shall be ignored.
N/A	CUG information List	This parameter shall be ignored.
N/A	SS-Data List	This parameter shall be ignored.
N/A	eMLPP Subscription Data	This parameter shall be ignored.
N/A	MC-Subscription Data	This parameter shall be ignored.
Operator-Determined-Barring AVP within Subscription-Data AVP	Operator Determined Barring General data	
HPLMN-ODB AVP within Subscription-Data	Operator Determined Barring HPLMN data	
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Regional Subscription Data	
N/A	VLR CAMEL Subscription Info	This parameter shall be ignored.
N/A	Voice Broadcast Data	This parameter shall be ignored.
N/A	Voice Group Call Data	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Network access mode	

FFS	GPRS Subscription Data	
FFS: Access-Restriction-Data AVP within Subscription-Data	Roaming Restricted In SGSN Due To Unsupported Feature	
N/A	North American Equal Access preferred Carrier Id List	This parameter shall be ignored.
N/A	SGSN CAMEL Subscription Info	This parameter shall be ignored.
N/A	LSA Information	This parameter shall be ignored.
N/A	IST Alert Timer	This parameter shall be ignored.
N/A	LMU Identifier	This parameter shall be ignored.
N/A	LCS Information	This parameter shall be ignored.
N/A	CS Allocation/Retention priority	This parameter shall be ignored.
N/A	Super-Charger Supported In HLR	This parameter shall be ignored.
3GPP-Charging-Characteristics AVP within Subscription-Data	Subscribed Charging Characteristics	
Access-Restriction-Data AVP within Subscription-Data	Access Restriction Data	
N/A	Invoke Id	This parameter shall be ignored.
FFS: we need to decide which AVPs in Subscription-Data will be mapped to this parameter	ADD Capability	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
N/A	HLR number	IWF shall record this AVP for further SS7 message sent back to the same peer.
N/A	User error	This parameter shall be ignored.

6.6.2.2 Detailed IWF Behaviour

6.6.2.3 New Requirements for S6a/S6d

6.6.3 Mapping for Scenario Four

6.6.3.1 AVP Mapping

The AVP mapping from MAP-InsertSubscriberData and MAP-UpdateGprsLocation Ack to Diameter-ULA for scenario four is listed as table below:

Table 6.6.3.1-1: AVP Mapping from MAP-InsertSubscriberData and MAP-UpdateGprsLocation Ack to Diameter-ULR for scenario four

S6a/S6d Diameter AVP within target ULA	MAP parameter within source InsertSubscriberData and UpdateGprsLocation Ack	Comments
Supported-Features	TBD	
Result	TBD	
ULA Flags	TBD	FFS: IWF shall set this parameter cleared.
Subscription Data	TBD	IWF shall do the mapping between the MAP parameters and the following AVPs within Subscription-Data AVP: STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	IMSI	This parameter shall be ignored.
MSISDN AVP within Subscription-Data	MSISDN	
N/A	Category	This parameter shall be ignored.
Subscriber status AVP within Subscription-Data	Subscriber Status	
N/A	Bearer service List	This parameter shall be ignored.
N/A	Teleservice List	This parameter shall be ignored.
N/A	Forwarding information List	This parameter shall be ignored.
N/A	Call barring information List	This parameter shall be ignored.
N/A	CUG information List	This parameter shall be ignored.
N/A	SS-Data List	This parameter shall be ignored.
N/A	eMLPP Subscription Data	This parameter shall be ignored.
N/A	MC-Subscription Data	This parameter shall be ignored.
Operator-Determined-Barring AVP within Subscription-Data AVP	Operator Determined Barring General data	
HPLMN-ODB AVP within Subscription-Data	Operator Determined Barring HPLMN data	
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Regional Subscription Data	
N/A	VLR CAMEL Subscription Info	This parameter shall be ignored.
N/A	Voice Broadcast Data	This parameter shall be ignored.
N/A	Voice Group Call Data	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Network access mode	

FFS	GPRS Subscription Data	
FFS: Access-Restriction-Data AVP within Subscription-Data	Roaming Restricted In SGSN Due To Unsupported Feature	
N/A	North American Equal Access preferred Carrier Id List	This parameter shall be ignored.
N/A	SGSN CAMEL Subscription Info	This parameter shall be ignored.
N/A	LSA Information	This parameter shall be ignored.
N/A	IST Alert Timer	This parameter shall be ignored.
N/A	LMU Identifier	This parameter shall be ignored.
N/A	LCS Information	This parameter shall be ignored.
N/A	CS Allocation/Retention priority	This parameter shall be ignored.
N/A	Super-Charger Supported In HLR	This parameter shall be ignored.
3GPP-Charging-Characteristics AVP within Subscription-Data	Subscribed Charging Characteristics	
Access-Restriction-Data AVP within Subscription-Data	Access Restriction Data	
N/A	Invoke Id	This parameter shall be ignored.
FFS: we need to decide which AVPs in Subscription-Data will be mapped to this parameter	ADD Capability	
N/A	HLR number	IWF shall record this AVP for further SS7 message sent back to the same peer.
N/A	User error	This parameter shall be ignored.

6.6.3.2 Detailed IWF Behaviour

6.6.3.3 New Requirements for S6a/S6d

6.7 Diameter-IDR Mapping to MAP-InsertSubscriberData

6.7.1 Mapping for Scenario Four

6.7.1.1 AVP Mapping

The AVP mapping from Diameter-IDR to MAP-InsertSubscriberData for scenario four is listed as table below:

Table 6.7.1.1-1: AVP Mapping from Diameter-IDR to MAP- InsertSubscriberData for scenario four

MAP parameter within target InsertSubscriberData	S6a/S6d Diameter AVP within source IDR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User Name	
MSISDN	MSISDN AVP within Subscription-Data	
Category	N/A	This parameter shall be absent.
Subscriber Status	Subscriber status AVP within Subscription-Data	
Bearer service List	N/A	This parameter shall be absent.
Teleservice List	N/A	This parameter shall be absent.
Forwarding information List	N/A	This parameter shall be absent.
Call barring information List	N/A	This parameter shall be absent.
CUG information List	N/A	This parameter shall be absent.
SS-Data List	N/A	This parameter shall be absent.
eMLPP Subscription Data	N/A	This parameter shall be absent.
MC-Subscription Data	N/A	This parameter shall be absent.
Operator Determined Barring General data	Operator-Determined-Barring AVP within Subscription-Data AVP	
Operator Determined Barring HPLMN data	HPLMN-ODB AVP within Subscription-Data	
Roaming Restriction Due To Unsupported Feature	N/A	This parameter shall be absent.
Regional Subscription Data	Regional-Subscription-Zone-Code AVPs within Subscription-Data	
VLR CAMEL Subscription Info	N/A	This parameter shall be absent.
Voice Broadcast Data	N/A	This parameter shall be absent.
Voice Group Call Data	N/A	This parameter shall be absent.
Network access mode	Regional-Subscription-Zone-Code AVPs within Subscription-Data	
GPRS Subscription Data	FFS	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
Roaming Restricted In SGSN Due To Unsupported Feature	FFS: Access-Restriction-Data AVP within Subscription-Data	
North American Equal Access preferred Carrier Id List	N/A	This parameter shall be absent.
SGSN CAMEL Subscription Info	N/A	This parameter shall be absent.
LSA Information	N/A	This parameter shall be absent.
IST Alert Timer	N/A	This parameter shall be absent.
LMU Identifier	N/A	This parameter shall be absent.

LCS Information	N/A	This parameter shall be absent.
CS Allocation/Retention priority	N/A	This parameter shall be absent.
Super-Charger Supported In HLR	N/A	This parameter shall be absent.
Subscribed Charging Characteristics	3GPP-Charging-Characteristics AVP within Subscription-Data	
Access Restriction Data	Access-Restriction-Data AVP within Subscription-Data	
TBD	Supported Features	
TBD	Subscription Data	IWF shall do the mapping between the MAP parameters and the following AVPs within Subscription-Data AVP: STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority.

6.7.1.2 Detailed IWF Behaviour

6.7.1.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

New parameters which describes STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority for EPS subscription data are needed to be defined in MAP.

6.8 MAP-InsertSubscriberData Mapping to Diameter-IDR

6.8.1 Mapping for Scenario One

6.8.1.1 AVP Mapping

The AVP mapping from MAP-InsertSubscriberData to Diameter-IDR for scenario one is listed as table below:

Table 6.8.1.1-1: AVP Mapping from MAP-InsertSubscriberData to Diameter-IDR for scenario one

S6a/S6d Diameter AVP within target IDR	MAP parameter within source InsertSubscriberData	Comments
User Name	IMSI	
Supported-Features	N/A	This parameter shall be absent.
Subscription Data	N/A	This parameter shall be absent.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
MSISDN AVP within Subscription-Data	MSISDN	
N/A	Category	This parameter shall be ignored.
Subscriber status AVP within Subscription-Data	Subscriber Status	
N/A	Bearer service List	This parameter shall be ignored.
N/A	Teleservice List	This parameter shall be ignored.
N/A	Forwarding information List	This parameter shall be ignored.
N/A	Call barring information List	This parameter shall be ignored.
N/A	CUG information List	This parameter shall be ignored.
N/A	SS-Data List	This parameter shall be ignored.
N/A	eMLPP Subscription Data	This parameter shall be ignored.
N/A	MC-Subscription Data	This parameter shall be ignored.
Operator-Determined-Barring AVP within Subscription-Data AVP	Operator Determined Barring General data	
HPLMN-ODB AVP within Subscription-Data	Operator Determined Barring HPLMN data	
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Regional Subscription Data	
N/A	VLR CAMEL Subscription Info	This parameter shall be ignored.
N/A	Voice Broadcast Data	This parameter shall be ignored.
N/A	Voice Group Call Data	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Network access mode	
FFS	GPRS Subscription Data	
FFS: Access-Restriction-Data AVP within Subscription-Data	Roaming Restricted In SGSN Due To Unsupported Feature	
N/A	North American Equal Access preferred Carrier Id List	This parameter shall be ignored.
N/A	SGSN CAMEL Subscription Info	This parameter shall be ignored.

N/A	LSA Information	This parameter shall be ignored.
N/A	IST Alert Timer	This parameter shall be ignored.
N/A	LMU Identifier	This parameter shall be ignored.
N/A	LCS Information	This parameter shall be ignored.
N/A	CS Allocation/Retention priority	This parameter shall be ignored.
N/A	Super-Charger Supported In HLR	This parameter shall be ignored.
3GPP-Charging-Characteristics AVP within Subscription-Data	Subscribed Charging Characteristics	
Access-Restriction-Data AVP within Subscription-Data	Access Restriction Data	

6.8.1.2 Detailed IWF Behaviour

6.8.1.3 New Requirements for S6a/S6d

6.8.2 Mapping for Scenario Three

6.8.2.1 AVP Mapping

The AVP mapping from MAP-InsertSubscriberData to Diameter-IDR for scenario three is listed as table below:

Table 6.8.2.1-1: AVP Mapping from MAP-InsertSubscriberData to Diameter-IDR for scenario three

S6a/S6d Diameter AVP within target IDR	MAP parameter within source InsertSubscriberData	Comments
User Name	IMSI	
Supported-Features	TBD	
Subscription Data	TBD	IWF shall do the mapping between the MAP parameters and the following AVPs within Subscription-Data AVP: STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
MSISDN AVP within Subscription-Data	MSISDN	
N/A	Category	This parameter shall be ignored.
Subscriber status AVP within Subscription-Data	Subscriber Status	
N/A	Bearer service List	This parameter shall be ignored.
N/A	Teleservice List	This parameter shall be ignored.
N/A	Forwarding information List	This parameter shall be ignored.
N/A	Call barring information List	This parameter shall be ignored.
N/A	CUG information List	This parameter shall be ignored.
N/A	SS-Data List	This parameter shall be ignored.
N/A	eMLPP Subscription Data	This parameter shall be ignored.
N/A	MC-Subscription Data	This parameter shall be ignored.
Operator-Determined-Barring AVP within Subscription-Data AVP	Operator Determined Barring General data	
HPLMN-ODB AVP within Subscription-Data	Operator Determined Barring HPLMN data	
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Regional Subscription Data	
N/A	VLR CAMEL Subscription Info	This parameter shall be ignored.
N/A	Voice Broadcast Data	This parameter shall be ignored.
N/A	Voice Group Call Data	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Network access mode	
FFS	GPRS Subscription Data	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
FFS: Access-Restriction-Data AVP within Subscription-Data	Roaming Restricted In SGSN Due To Unsupported Feature	
N/A	North American Equal Access preferred Carrier Id List	This parameter shall be ignored.

N/A	SGSN CAMEL Subscription Info	This parameter shall be ignored.
N/A	LSA Information	This parameter shall be ignored.
N/A	IST Alert Timer	This parameter shall be ignored.
N/A	LMU Identifier	This parameter shall be ignored.
N/A	LCS Information	This parameter shall be ignored.
N/A	CS Allocation/Retention priority	This parameter shall be ignored.
N/A	Super-Charger Supported In HLR	This parameter shall be ignored.
3GPP-Charging-Characteristics AVP within Subscription-Data	Subscribed Charging Characteristics	
Access-Restriction-Data AVP within Subscription-Data	Access Restriction Data	

6.8.2.2 Detailed IWF Behaviour

6.8.2.3 New Requirements for S6a/S6d

6.8.3 Mapping for Scenario Four

6.8.3.1 AVP Mapping

The AVP mapping from MAP-InsertSubscriberData to Diameter-IDR for scenario four is listed as table below:

Table 6.8.3.1-1: AVP Mapping from MAP-InsertSubscriberData to Diameter-IDR for scenario four

S6a/S6d Diameter AVP within target IDR	MAP parameter within source InsertSubscriberData	Comments
User Name	IMSI	
Supported-Features	TBD	
Subscription Data	TBD	IWF shall do the mapping between the MAP parameters and the following AVPs within Subscription-Data AVP: STN-SR, APN-OI-Replacement, AMBR, APN-Configuration-Profile, RAT-Frequency-Selection-Priority.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
MSISDN AVP within Subscription-Data	MSISDN	
N/A	Category	This parameter shall be ignored.
Subscriber status AVP within Subscription-Data	Subscriber Status	
N/A	Bearer service List	This parameter shall be ignored.
N/A	Teleservice List	This parameter shall be ignored.
N/A	Forwarding information List	This parameter shall be ignored.
N/A	Call barring information List	This parameter shall be ignored.
N/A	CUG information List	This parameter shall be ignored.
N/A	SS-Data List	This parameter shall be ignored.
N/A	eMLPP Subscription Data	This parameter shall be ignored.
N/A	MC-Subscription Data	This parameter shall be ignored.
Operator-Determined-Barring AVP within Subscription-Data AVP	Operator Determined Barring General data	
HPLMN-ODB AVP within Subscription-Data	Operator Determined Barring HPLMN data	
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Regional Subscription Data	
N/A	VLR CAMEL Subscription Info	This parameter shall be ignored.
N/A	Voice Broadcast Data	This parameter shall be ignored.
N/A	Voice Group Call Data	This parameter shall be ignored.
Regional-Subscription-Zone-Code AVPs within Subscription-Data	Network access mode	
FFS	GPRS Subscription Data	This parameter may needed if GPRS based subscriber data can be sent on S6a/S6d.
FFS: Access-Restriction-Data AVP within Subscription-Data	Roaming Restricted In SGSN Due To Unsupported Feature	
N/A	North American Equal Access preferred Carrier Id List	This parameter shall be ignored.

N/A	SGSN CAMEL Subscription Info	This parameter shall be ignored.
N/A	LSA Information	This parameter shall be ignored.
N/A	IST Alert Timer	This parameter shall be ignored.
N/A	LMU Identifier	This parameter shall be ignored.
N/A	LCS Information	This parameter shall be ignored.
N/A	CS Allocation/Retention priority	This parameter shall be ignored.
N/A	Super-Charger Supported In HLR	This parameter shall be ignored.
3GPP-Charging-Characteristics AVP within Subscription-Data	Subscribed Charging Characteristics	
Access-Restriction-Data AVP within Subscription-Data	Access Restriction Data	

6.8.3.2 Detailed IWF Behaviour

6.8.3.3 New Requirements for S6a/S6d

6.9 Diameter-IDA Mapping to MAP-InsertSubscriberData Ack

6.9.1 Mapping for Scenario One

6.9.1.1 AVP Mapping

The AVP mapping from Diameter-IDA to MAP-InsertSubscriberData Ack for scenario one is listed as table below:

Table 6.9.3.1-1: AVP Mapping from Diameter-IDA to MAP- InsertSubscriberData Ack for scenario one

MAP parameter within target InsertSubscriberData Ack	S6a/S6d Diameter AVP within source IDA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
Bearer service List	N/A	This parameter shall be absent.
Teleservice List	N/A	This parameter shall be absent.
Operator Determined Barring General data	N/A	This parameter shall be absent.
SS-Code List	N/A	This parameter shall be absent.
Regional Subscription Response	N/A	This parameter shall be absent.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
User error	Result	
N/A	Supported Features	This parameter shall be ignored.
N/A	IDA-Flags	This parameter shall be ignored.

6.9.1.2 Detailed IWF Behaviour

6.9.1.3 New Requirements for Pre Rel8 Gr

6.9.2 Mapping for Scenario Three

6.9.2.1 AVP Mapping

The AVP mapping from Diameter-IDA to MAP-InsertSubscriberData Ack for scenario three is listed as table below:

Table 6.9.3.1-1: AVP Mapping from Diameter-IDA to MAP- InsertSubscriberData Ack for scenario three

MAP parameter within target InsertSubscriberData Ack	S6a/S6d Diameter AVP within source IDA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
Bearer service List	N/A	This parameter shall be absent.
Teleservice List	N/A	This parameter shall be absent.
Operator Determined Barring General data	N/A	This parameter shall be absent.
SS-Code List	N/A	This parameter shall be absent.
Regional Subscription Response	N/A	This parameter shall be absent.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
User error	Result	
N/A	Supported Features	This parameter shall be ignored.
N/A	IDA-Flags	This parameter shall be ignored.

6.9.3.2 Detailed IWF Behaviour

6.9.3.3 New Requirements for Rel8 Gr

6.9.3 Mapping for Scenario Four

6.9.3.1 AVP Mapping

The AVP mapping from Diameter-IDA to MAP-InsertSubscriberData Ack for scenario four is listed as table below:

Table 6.9.3.1-1: AVP Mapping from Diameter-IDA to MAP- InsertSubscriberData Ack for scenario four

MAP parameter within target InsertSubscriberData Ack	S6a/S6d Diameter AVP within source IDA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
Bearer service List	N/A	This parameter shall be absent.
Teleservice List	N/A	This parameter shall be absent.
Operator Determined Barring General data	N/A	This parameter shall be absent.
SS-Code List	N/A	This parameter shall be absent.
Regional Subscription Response	N/A	This parameter shall be absent.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
User error	Result	
TBD	Supported Features	
TBD	IDA-Flags	

6.9.3.2 Detailed IWF Behaviour

6.9.3.3 New Requirements for Rel8 Gr

A new parameter which indicates IDA Flags is needed to be defined in MAP.

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

6.10 MAP-InsertSubscriberData Ack Mapping to Diameter-IDA

6.10.1 Mapping for Scenario Four

6.10.1.1 AVP Mapping

The AVP mapping from MAP-InsertSubscriberData Ack to Diameter-IDA for scenario four is listed as table below:

Table 6.10.1.1-1: AVP Mapping from MAP- InsertSubscriberData Ack to Diameter-IDA for scenario four

S6a/S6d Diameter AVP within target IDA	MAP parameter within source InsertSubscriberData Ack	Comments
Supported-Features	TBD	
Result	User error	
ULR Flags	TBD	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Bearer service List	IWF shall ignore this AVP.
N/A	Teleservice List	IWF shall ignore this AVP.
N/A	Operator Determined Barring General data	IWF shall ignore this AVP.
N/A	SS-Code List	IWF shall ignore this AVP.
N/A	Regional Subscription Response	IWF shall ignore this AVP.
N/A	Supported CAMEL Phases	IWF shall ignore this AVP.
N/A	Offered CAMEL 4 CSIs	IWF shall ignore this AVP.

6.10.1.2 Detailed IWF Behaviour

6.10.1.3 New Requirements for S6a/S6d

6.11 Diameter-DSR Mapping to MAP-DeleteSubscriberData

6.11.1 Mapping for Scenario Four

6.11.1.1 AVP Mapping

The AVP mapping from Diameter-DSR to MAP-DeleteSubscriberData for scenario four is listed as table below:

Table 6.11.1.1-1: AVP Mapping from Diameter-DSR to MAP - DeleteSubscriberData for scenario four

MAP parameter within target DeletetSubscriberData	S6a/S6d Diameter AVP within source DSR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User Name	
Basic service List	N/A	This parameter shall be absent.
SS-Code List	N/A	This parameter shall be absent.
Roaming Restriction Due To Unsupported Feature	N/A	This parameter shall be absent.
Camel Subscription Info Withdraw	N/A	This parameter shall be absent.
Specific CSI Withdraw	N/A	This parameter shall be absent.
Regional Subscription Data	N/A	This parameter shall be absent.
VBS Group Indication	N/A	This parameter shall be absent.
VGCS Group Indication	N/A	This parameter shall be absent.
GPRS Subscription Data Withdraw	N/A	This parameter shall be absent.
Roaming Restricted In SGSN Due To Unsupported Feature	N/A	This parameter shall be absent.
LSA Information Withdraw	N/A	This parameter shall be absent.
IST Information Withdraw	N/A	This parameter shall be absent.
GMLC List Withdraw	N/A	This parameter shall be absent.
Subscribed Charging Characteristics Withdraw	N/A	This parameter shall be absent.
TBD	Supported Features	
TBD	DSR Flags	
TBD	Context Identifier	

6.11.1.2 Detailed IWF Behaviour

6.11.1.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

A new parameter which describes the DSR Flags is needed to be defined in MAP.

A new parameter which describes the Context Identifier is needed to be defined in MAP.

6.12 MAP-DeleteSubscriberData Mapping to Diameter-DSR

6.12.1 Mapping for Scenario One

6.12.1.1 AVP Mapping

The AVP mapping from MAP-DeleteSubscriberData to Diameter-DSR for scenario one is listed as table below:

Table 6.12.1.1-1: AVP Mapping from MAP-DeleteSubscriberData to Diameter-DSR for scenario one

S6a/S6d Diameter AVP within target DSR	MAP parameter within source DeletSubscriberData	Comments
User Name	IMSI	
Supported-Features	N/A	This parameter shall be absent.
DSR Flags	N/A	This parameter shall be absent.
Context Identifier	N/A	This parameter shall be absent.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Basic service List	This parameter shall be ignored.
N/A	SS-Code List	This parameter shall be ignored.
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored.
N/A	Camel Subscription Info Withdraw	This parameter shall be ignored.
N/A	Specific CSI Withdraw	This parameter shall be ignored.
N/A	Regional Subscription Data	This parameter shall be ignored.
N/A	VBS Group Indication	This parameter shall be ignored.
N/A	VGCS Group Indication	This parameter shall be ignored.
N/A	GPRS Subscription Data Withdraw	This parameter shall be ignored.
N/A	Roaming Restricted In SGSN Due To Unsupported Feature	This parameter shall be ignored.
N/A	LSA Information Withdraw	This parameter shall be ignored.
N/A	IST Information Withdraw	This parameter shall be ignored.
N/A	GMLC List Withdraw	This parameter shall be ignored.
N/A	Subscribed Charging Characteristics Withdraw	This parameter shall be ignored.

6.12.1.2 Detailed IWF Behaviour

6.12.1.3 New Requirements for S6a/S6d

6.12.2 Mapping for Scenario Three

6.12.2.1 AVP Mapping

The AVP mapping from MAP-DeleteSubscriberData to Diameter-DSR for scenario three is listed as table below:

Table 6.12.2.1-1: AVP Mapping from MAP-DeleteSubscriberData to Diameter-DSR for scenario three

S6a/S6d Diameter AVP within target DSR	MAP parameter within source DeletSubscriberData	Comments
User Name	IMSI	
Supported-Features	N/A	This parameter shall be absent.
DSR Flags	N/A	This parameter shall be absent.
Context Identifier	N/A	This parameter shall be absent.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Basic service List	This parameter shall be ignored.
N/A	SS-Code List	This parameter shall be ignored.
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored.
N/A	Camel Subscription Info Withdraw	This parameter shall be ignored.
N/A	Specific CSI Withdraw	This parameter shall be ignored.
N/A	Regional Subscription Data	This parameter shall be ignored.
N/A	VBS Group Indication	This parameter shall be ignored.
N/A	VGCS Group Indication	This parameter shall be ignored.
N/A	GPRS Subscription Data Withdraw	This parameter shall be ignored.
N/A	Roaming Restricted In SGSN Due To Unsupported Feature	This parameter shall be ignored.
N/A	LSA Information Withdraw	This parameter shall be ignored.
N/A	IST Information Withdraw	This parameter shall be ignored.
N/A	GMLC List Withdraw	This parameter shall be ignored.
N/A	Subscribed Charging Characteristics Withdraw	This parameter shall be ignored.

6.12.2.2 Detailed IWF Behaviour

6.12.2.3 New Requirements for S6a/S6d

6.12.3 Mapping for Scenario Four

6.12.3.1 AVP Mapping

The AVP mapping from MAP-DeleteSubscriberData to Diameter-DSR for scenario four is listed as table below:

Table 6.12.3.1-1: AVP Mapping from MAP-DeleteSubscriberData to Diameter-DSR for scenario four

S6a/S6d Diameter AVP within target DSR	MAP parameter within source DeletSubscriberData	Comments
User Name	IMSI	
Supported-Features	TBD	
DSR Flags	TBD	
Context Identifier	TBD	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Basic service List	This parameter shall be ignored.
N/A	SS-Code List	This parameter shall be ignored.
N/A	Roaming Restriction Due To Unsupported Feature	This parameter shall be ignored.
N/A	Camel Subscription Info Withdraw	This parameter shall be ignored.
N/A	Specific CSI Withdraw	This parameter shall be ignored.
N/A	Regional Subscription Data	This parameter shall be ignored.
N/A	VBS Group Indication	This parameter shall be ignored.
N/A	VGCS Group Indication	This parameter shall be ignored.
N/A	GPRS Subscription Data Withdraw	This parameter shall be ignored.
N/A	Roaming Restricted In SGSN Due To Unsupported Feature	This parameter shall be ignored.
N/A	LSA Information Withdraw	This parameter shall be ignored.
N/A	IST Information Withdraw	This parameter shall be ignored.
N/A	GMLC List Withdraw	This parameter shall be ignored.
N/A	Subscribed Charging Characteristics Withdraw	This parameter shall be ignored.

6.12.3.2 Detailed IWF Behaviour

6.12.3.3 New Requirements for S6a/S6d

6.13 Diameter-DSA Mapping to MAP-DeleteSubscriberData Ack

6.13.1 Mapping for Scenario One

6.13.1.1 AVP Mapping

The AVP mapping from Diameter-DSA to MAP-DeleteSubscriberData Ack for scenario one is listed as table below:

Table 6.13.1.1-1: AVP Mapping from Diameter-DSA to MAP- DeleteSubscriberData Ack for scenario one

MAP parameter within target DeleteSubscriberData Ack	S6a/S6d Diameter AVP within source DSA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
Regional Subscription Response	N/A	This parameter shall be absent.
User error	Result	
N/A	Supported Features	This parameter shall be ignored.
N/A	DSA-Flags	This parameter shall be ignored.

6.13.1.2 Detailed IWF Behaviour

6.13.1.3 New Requirements for Pre Rel8 Gr

6.13.2 Mapping for Scenario Three

6.13.2.1 AVP Mapping

The AVP mapping from Diameter-DSA to MAP-DeleteSubscriberData Ack for scenario three is listed as table below:

Table 6.13.2.1-1: AVP Mapping from Diameter-DSA to MAP- DeleteSubscriberData Ack for scenario three

MAP parameter within target DeleteSubscriberData Ack	S6a/S6d Diameter AVP within source DSA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
Regional Subscription Response	N/A	This parameter shall be absent.
User error	Result	
N/A	Supported Features	This parameter shall be ignored.
N/A	DSA-Flags	This parameter shall be ignored.

6.13.2.2 Detailed IWF Behaviour

6.13.2.3 New Requirements for Rel8 Gr

6.13.3 Mapping for Scenario Four

6.13.3.1 AVP Mapping

The AVP mapping from Diameter-DSA to MAP-DeleteSubscriberData Ack for scenario four is listed as table below:

Table 6.13.3.1-1: AVP Mapping from Diameter-DSA to MAP- DeleteSubscriberData Ack for scenario four

MAP parameter within target DeleteSubscriberData Ack	S6a/S6d Diameter AVP within source DSA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
Regional Subscription Response	N/A	This parameter shall be absent.
User error	Result	
TBD	Supported Features	
TBD	DSA-Flags	

6.13.3.2 Detailed IWF Behaviour

6.13.3.3 New Requirements for Rel8 Gr

A new parameter which indicates DSA Flags is needed to be defined in MAP.

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

6.14 MAP-DeleteSubscriberData Ack Mapping to Diameter-DSA

6.14.1 Mapping for Scenario Four

6.14.1.1 AVP Mapping

The AVP mapping from MAP-DeleteSubscriberData Ack to Diameter-DSA for scenario four is listed as table below:

Table 6.14.1.1-1: AVP Mapping from MAP- DeleteSubscriberData Ack to Diameter-DSA for scenario four

S6a/S6d Diameter AVP within target DSA	MAP parameter within source DeleteSubscriberData Ack	Comments
Supported-Features	TBD	
Result	User error	
DSA Flags	TBD	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Regional Subscription Response	IWF shall ignore this AVP.

6.14.1.2 Detailed IWF Behaviour

6.14.1.3 New Requirements for S6a/S6d

6.15 Diameter-PUR Mapping to MAP-PurgeMS

6.15.1 Mapping for Scenario One

6.15.1.1 AVP Mapping

The AVP mapping from Diameter-PUR to MAP-PurgeMS for scenario one is listed as table below:

Table 6.15.1.1-1: AVP Mapping from Diameter-PUR to MAP- PurgeMS for scenario one

MAP parameter within target PurgeMS	S6a/S6d Diameter AVP within source PUR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User-Name	
VLR number	N/A	This parameter shall be absent.
SGSN number	N/A	See section 4A.2 for detail.
N/A	Supported Features	

6.15.1.2 Detailed IWF Behaviour

6.15.1.3 New Requirements for Pre Rel8 Gr

6.15.2 Mapping for Scenario Three

6.15.2.1 AVP Mapping

The AVP mapping from Diameter-PUR to MAP-PurgeMS for scenario three is listed as table below:

Table 6.15.2.1-1: AVP Mapping from Diameter-PUR to MAP- PurgeMS for scenario three

MAP parameter within target PurgeMS	S6a/S6d Diameter AVP within source PUR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User-Name	
VLR number	N/A	This parameter shall be absent.
SGSN number	N/A	See section 4A.2 for detail.
N/A	Supported Features	

6.15.2.2 Detailed IWF Behaviour

6.15.2.3 New Requirements for Rel8 Gr

6.15.3 Mapping for Scenario Four

6.15.3.1 AVP Mapping

The AVP mapping from Diameter-PUR to MAP-PurgeMS for scenario four is listed as table below:

Table 6.15.3.1-1: AVP Mapping from Diameter-PUR to MAP- PurgeMS for scenario four

MAP parameter within target PurgeMS	S6a/S6d Diameter AVP within source PUR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User-Name	
VLR number	N/A	This parameter shall be absent.
SGSN number	N/A	See section 4A.2 for detail.
TBD	Supported Features	

6.15.3.2 Detailed IWF Behaviour

6.15.3.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

6.16 MAP-PurgeMS Mapping to Diameter-PUR

6.16.1 Mapping for Scenario Four

6.16.1.1 AVP Mapping

The AVP mapping from MAP- PurgeMS to Diameter-PUR for scenario four is listed as table below:

Table 6.16.1.1-1: AVP Mapping from MAP- PurgeMS to Diameter-PUR for scenario four

S6a/S6d Diameter AVP within target PUR	MAP parameter within source PurgeMS	Comments
Supported-Features	TBD	
User-Name	IMSI	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	VLR number	IWF shall ignore this AVP.
N/A	SGSN number	IWF shall record this AVP for further SS7 message sent back to the same peer.

6.16.1.2 Detailed IWF Behaviour

6.16.1.3 New Requirements for S6a/S6d

6.17 Diameter-PUA Mapping to MAP-PurgeMS Ack

6.17.1 Mapping for Scenario Four

6.17.1.1 AVP Mapping

The AVP mapping from Diameter-PUA to MAP- PurgeMS Ack for scenario four is listed as table below:

Table 6.17.1.1-1: AVP Mapping from Diameter-PUA to MAP- PurgeMS Ack for scenario four

MAP parameter within target PurgeMS Ack	S6a/S6d Diameter AVP within sourcePUA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
Freeze TMSI	User Name	This parameter shall be absent.
Freeze P-TMSI	FFS	FFS: M-TMSI is needed for S6a/S6d.
User error	Result	
TBD	Supported Features	
TBD	PUA-Flags	

6.17.1.2 Detailed IWF Behaviour

6.17.1.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

A new parameter which describes the PUA Flags is needed to be defined in MAP.

A new parameter which describes the Result is needed to be defined in MAP.

6.18 MAP-PurgeMS Ack Mapping to Diameter-PUA

6.18.1 Mapping for Scenario One

6.18.1.1 AVP Mapping

The AVP mapping from MAP- PurgeMS Ack to Diameter-PUA for scenario one is listed as table below:

Table 6.18.1.1-1: AVP Mapping from MAP- PurgeMS Ack to Diameter-PUA for scenario one

S6a/S6d Diameter AVP within target PUA	MAP parameter within source PurgeMS Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
PUA-Flags	N/A	This parameter shall be absent.
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Freeze TMSI	This parameter shall be ignored.
FFS	Freeze P-TMSI	FFS: M-TMSI is needed for S6a/S6d.

6.18.1.2 Detailed IWF Behaviour

6.18.1.3 New Requirements for S6a/S6d

6.18.2 Mapping for Scenario Three

6.18.2.1 AVP Mapping

The AVP mapping from MAP- PurgeMS Ack to Diameter-PUA for scenario three is listed as table below:

Table 6.18.2.1-1: AVP Mapping from MAP- PurgeMS Ack to Diameter-PUA for scenario three

S6a/S6d Diameter AVP within target PUA	MAP parameter within source PurgeMS Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
PUA-Flags	N/A	This parameter shall be absent.
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Freeze TMSI	This parameter shall be ignored.
FFS	Freeze P-TMSI	FFS: M-TMSI is needed for S6a/S6d.

6.18.2.2 Detailed IWF Behaviour

6.18.2.3 New Requirements for S6a/S6d

6.18.3 Mapping for Scenario Four

6.18.3.1 AVP Mapping

The AVP mapping from MAP- PurgeMS Ack to Diameter-PUA for scenario four is listed as table below:

Table 6.18.3.1-1: AVP Mapping from MAP- PurgeMS Ack to Diameter-PUA for scenario four

S6a/S6d Diameter AVP within target PUA	MAP parameter within source PurgeMS Ack	Comments
Supported-Features	TBD	
PUA-Flags	TBD	
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	Freeze TMSI	This parameter shall be ignored.
FFS	Freeze P-TMSI	FFS: M-TMSI is needed for S6a/S6d.

6.18.3.2 Detailed IWF Behaviour

6.18.3.3 New Requirements for S6a/S6d

6.19 Diameter-AIR Mapping to MAP-SendAuthenticationInfo

6.19.1 Mapping for Scenario One

6.19.1.1 AVP Mapping

The AVP mapping from Diameter-AIR to MAP-SendAuthenticationInfo for scenario one is listed as table below:

Table 6.19.1.1-1: AVP Mapping from Diameter-AIR to MAP- SendAuthenticationInfo for scenario one

MAP parameter within target SendAuthenticationInfo	S6a/S6d Diameter AVP within source AIR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User-Name	
Number of requested vectors	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	.
Requesting node type	Requesting Node Type	
Re-synchronisation Info	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	
Segmentation prohibited indicator	N/A	This parameter shall be absent.
Immediate response preferred indicator	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	
Requesting PLMN ID	Visited PLMN ID	
TBD	Supported Features	
TBD	Requested E-UTRAN Authentication Info	

6.19.1.2 Detailed IWF Behaviour

6.19.1.3 New Requirements for Pre Rel8 Gr

6.19.2 Mapping for Scenario Three

6.19.2.1 AVP Mapping

The AVP mapping from Diameter-AIR to MAP- SendAuthenticationInfo for scenario three is listed as table below:

Table 6.19.2.1-1: AVP Mapping from Diameter-AIR to MAP- SendAuthenticationInfo for scenario three

MAP parameter within target SendAuthenticationInfo	S6a/S6d Diameter AVP within source AIR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User-Name	
Number of requested vectors	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	.
Requesting node type	Requesting Node Type	
Re-synchronisation Info	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	
Segmentation prohibited indicator	N/A	This parameter shall be absent.
Immediate response preferred indicator	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	
Requesting PLMN ID	Visited PLMN ID	
TBD	Supported Features	
TBD	Requested E-UTRAN Authentication Info	

6.19.2.2 Detailed IWF Behaviour

6.19.2.3 New Requirements for Rel8 Gr

6.19.3 Mapping for Scenario Four

6.19.3.1 AVP Mapping

The AVP mapping from Diameter-AIR to MAP- SendAuthenticationInfo for scenario four is listed as table below:

Table 6.19.3.1-1: AVP Mapping from Diameter-AIR to MAP- SendAuthenticationInfo for scenario four

MAP parameter within target SendAuthenticationInfo	S6a/S6d Diameter AVP within source AIR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User-Name	
Number of requested vectors	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	.
Requesting node type	Requesting Node Type	
Re-synchronisation Info	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	
Segmentation prohibited indicator	N/A	This parameter shall be absent.
Immediate response preferred indicator	Requested UTRAN Authentication Info; Requested GERAN Authentication Info;	
Requesting PLMN ID	Visited PLMN ID	
TBD	Supported Features	
TBD	Requested E-UTRAN Authentication Info	

6.19.3.2 Detailed IWF Behaviour

6.19.3.3 New Requirements for Rel8 Gr

A new code point For E-UTRAN is needed to be defined for MAP- Requesting node type.

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

A new parameter which indicates Requested E-UTRAN Authentication Info is needed to be defined in MAP.

6.20 MAP-SendAuthenticationInfo Mapping to Diameter-AIR

6.20.1 Mapping for Scenario Four

6.20.1.1 AVP Mapping

The AVP mapping from MAP- SendAuthenticationInfo to Diameter-AIR for scenario four is listed as table below:

Table 6.20.1.1-1: AVP Mapping from MAP- SendAuthenticationInfo to Diameter-AIR for scenario four

S6a/S6d Diameter AVP within target AIR	MAP parameter within source SendAuthenticationInfo	Comments
Supported-Features	TBD	
User-Name	IMSI	
Requested UTRAN Authentication Info	Number of requested vectors; Re-synchronisation Info; Immediate response preferred indicator;	
Requested GERAN Authentication Info	Number of requested vectors; Re-synchronisation Info; Immediate response preferred indicator;	
Requested E-UTRAN Authentication Info	TBD	
Requesting Node Type	Requesting node type	
Visited PLMN ID	Requesting PLMN ID	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	VLR number	IWF shall ignore this AVP.
N/A	SGSN number	IWF shall record this AVP for further SS7 message sent back to the same peer.

6.20.1.2 Detailed IWF Behaviour

6.20.1.3 New Requirements for S6a/S6d

6.21 Diameter-AIA Mapping to MAP-SendAuthenticationInfo Ack

6.21.1 Mapping for Scenario Four

6.21.1.1 AVP Mapping

The AVP mapping from Diameter-AIA to MAP- SendAuthenticationInfo Ack for scenario four is listed as table below:

Table 6.21.1.1-1: AVP Mapping from Diameter-AIA to MAP- SendAuthenticationInfo Ack for scenario four

MAP parameter within target SendAuthenticationInfo Ack	S6a/S6d Diameter AVP within sourceAIA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
AuthenticationSetList	Authentication Info	
User error	N/A	This parameter shall be absent.
TBD	Supported Features	
TBD	Result	

6.21.1.2 Detailed IWF Behaviour

6.21.1.3 New Requirements for Rel8 Gr

A new subset parameter For EPS-Vector is needed to be defined for MAP- AuthenticationSetList.

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

A new parameter which describes the Result is needed to be defined in MAP.

6.22 MAP-SendAuthenticationInfo Ack Mapping to Diameter-AIA

6.22.1 Mapping for Scenario One

6.22.1.1 AVP Mapping

The AVP mapping from MAP- SendAuthenticationInfo Ack to Diameter-AIA for scenario one is listed as table below:

Table 6.22.1.1-1: AVP Mapping from MAP- SendAuthenticationInfo Ack to Diameter-AIA for scenario one

S6a/S6d Diameter AVP within target AIA	MAP parameter within source SendAuthenticationInfo Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
Authentication Info	AuthenticationSetList	
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
FFS	AuthenticationSetList	This parameter shall be ignored.

6.22.1.2 Detailed IWF Behaviour

6.22.1.3 New Requirements for S6a/S6d

6.22.2 Mapping for Scenario Three

6.22.2.1 AVP Mapping

The AVP mapping from MAP- SendAuthenticationInfo Ack to Diameter-AIA for scenario three is listed as table below:

Table 6.22.2.1-1: AVP Mapping from MAP- SendAuthenticationInfo Ack to Diameter-AIA for scenario three

S6a/S6d Diameter AVP within target AIA	MAP parameter within source SendAuthenticationInfo Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
Authentication Info	AuthenticationSetList	
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
FFS	AuthenticationSetList	This parameter shall be ignored.

6.22.2.2 Detailed IWF Behaviour

6.22.2.3 New Requirements for S6a/S6d

6.22.3 Mapping for Scenario Four

6.22.3.1 AVP Mapping

The AVP mapping from MAP- SendAuthenticationInfo Ack to Diameter-AIA for scenario four is listed as table below:

Table 6.22.3.1-1: AVP Mapping from MAP- SendAuthenticationInfo Ack to Diameter-AIA for scenario four

S6a/S6d Diameter AVP within target AIA	MAP parameter within source SendAuthenticationInfo Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
Authentication Info	AuthenticationSetList	
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.

6.22.3.2 Detailed IWF Behaviour

6.22.3.3 New Requirements for S6a/S6d

6.23 Diameter-CLR Mapping to MAP-CancelLocation

6.23.1 Mapping for Scenario Four

6.23.1.1 AVP Mapping

The AVP mapping from Diameter-CLR to MAP-CancelLocation for scenario four is listed as table below:

Table 6.23.1.1-1: AVP Mapping from Diameter-CLR to MAP- CancelLocation for scenario four

MAP parameter within target CancelLocation	S6a/S6d Diameter AVP within source CLR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMSI	User Name	
LMSI	N/A	This parameter shall be absent.
Cancellation Type	Cancellation Type	
TBD	Supported Features	

6.23.1.2 Detailed IWF Behaviour

6.23.1.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

6.24 MAP-CancelLocation Mapping to Diameter-CLR

6.24.1 Mapping for Scenario One

6.24.1.1 AVP Mapping

The AVP mapping from MAP- CancelLocation to Diameter-CLR for scenario one is listed as table below:

Table 6.24.1.1-1: AVP Mapping from MAP- CancelLocation to Diameter-CLR for scenario one

S6a/S6d Diameter AVP within target CLR	MAP parameter within source CancelLocation	Comments
User Name	IMSI	
Supported-Features	N/A	This parameter shall be absent.
Cancellation Type	Cancellation Type	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	LMSI	This parameter shall be ignored.

6.24.1.2 Detailed IWF Behaviour

6.24.1.3 New Requirements for S6a/S6d

6.24.2 Mapping for Scenario Three

6.24.2.1 AVP Mapping

The AVP mapping from MAP- CancelLocation to Diameter-CLR for scenario three is listed as table below:

Table 6.24.2.1-1: AVP Mapping from MAP- CancelLocation to Diameter-CLR for scenario three

S6a/S6d Diameter AVP within target CLR	MAP parameter within source CancelLocation	Comments
User Name	IMSI	
Supported-Features	N/A	This parameter shall be absent.
Cancellation Type	Cancellation Type	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	LMSI	This parameter shall be ignored.

6.24.2.2 Detailed IWF Behaviour

6.24.2.3 New Requirements for S6a/S6d

6.24.3 Mapping for Scenario Four

6.24.3.1 AVP Mapping

The AVP mapping from MAP- CancelLocation to Diameter-CLR for scenario four is listed as table below:

Table 6.24.3.1-1: AVP Mapping from MAP- CancelLocation to Diameter-CLR for scenario four

S6a/S6d Diameter AVP within target CLR	MAP parameter within source CancelLocation	Comments
User Name	IMSI	
Supported-Features	TBD	
Cancellation Type	Cancellation Type	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	LMSI	This parameter shall be ignored.

6.24.3.2 Detailed IWF Behaviour

6.24.3.3 New Requirements for S6a/S6d

6.25 Diameter-CLA Mapping to MAP-CancelLocation Ack

6.25.1 Mapping for Scenario One

6.25.1.1 AVP Mapping

The AVP mapping from Diameter-CLA to MAP- CancelLocation Ack for scenario one is listed as table below:

Table 6.25.1.1-1: AVP Mapping from Diameter-CLA to MAP- CancelLocation Ack for scenario one

MAP parameter within target CancelLocation Ack	S6a/S6d Diameter AVP within source CLA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
User error	Result	
N/A	Supported Features	This parameter shall be ignored.

6.25.1.2 Detailed IWF Behaviour

6.25.1.3 New Requirements for Pre Rel8 Gr

6.25.2 Mapping for Scenario Three

6.25.2.1 AVP Mapping

The AVP mapping from Diameter-CLA to MAP- CancelLocation Ack for scenario three is listed as table below:

Table 6.25.2.1-1: AVP Mapping from Diameter-CLA to MAP- CancelLocation Ack for scenario three

MAP parameter within target CancelLocation Ack	S6a/S6d Diameter AVP within source CLA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
User error	Result	
N/A	Supported Features	This parameter shall be ignored.

6.25.2.2 Detailed IWF Behaviour

6.25.2.3 New Requirements for Rel8 Gr

6.25.3 Mapping for Scenario Four

6.25.3.1 AVP Mapping

The AVP mapping from Diameter-CLA to MAP- CancelLocation Ack for scenario four is listed as table below:

Table 6.25.3.1-1: AVP Mapping from Diameter-CLA to MAP- CancelLocation Ack for scenario four

MAP parameter within target CancelLocation Ack	S6a/S6d Diameter AVP within source CLA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
User error	Result	
TBD	Supported Features	

6.25.3.2 Detailed IWF Behaviour

6.25.3.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

6.26 MAP-CancelLocation Ack Mapping to Diameter-CLA

6.26.1 Mapping for Scenario Four

6.26.1.1 AVP Mapping

The AVP mapping from MAP- CancelLocation Ack to Diameter-CLA for scenario four is listed as table below:

Table 6.26.1.1-1: AVP Mapping from MAP- CancelLocation Ack to Diameter-CLA for scenario four

S6a/S6d Diameter AVP within target CLA	MAP parameter within source CancelLocation Ack	Comments
Supported-Features	TBD	
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.

6.26.1.2 Detailed IWF Behaviour

6.26.1.3 New Requirements for S6a/S6d

6.27 Diameter-RSR Mapping to MAP-Reset

6.27.1 Mapping for Scenario Four

6.27.1.1 AVP Mapping

The AVP mapping from Diameter-RSR to MAP-Reset for scenario four is listed as table below:

Table 6.27.1.1-1: AVP Mapping from Diameter-RSR to MAP- Reset for scenario four

MAP parameter within target Reset	S6a/S6d Diameter AVP within source RSR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
HLR number	N/A	See section 4A.2 for detail.
HLR Id LIST	N/A	This parameter shall be absent.
TBD	User Id List	
TBD	Supported Features	

6.27.1.2 Detailed IWF Behaviour

6.27.1.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

A new parameter which indicates User Id List is needed to be defined in MAP.

6.28 MAP-Reset Mapping to a Diameter-RSR

6.28.1 Mapping for Scenario One

6.28.1.1 AVP Mapping

The AVP mapping from MAP- Reset to Diameter-RSR for scenario one is listed as table below:

Table 6.28.1.1-1: AVP Mapping from MAP- Reset to Diameter-RSR for scenario one

S6a/S6d Diameter AVP within target RSR	MAP parameter within source Reset	Comments
User Id List	N/A	This parameter shall be absent.
Supported-Features	N/A	This parameter shall be absent.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	HLR number	This parameter shall be ignored.
N/A	HLR Id LIST	This parameter shall be ignored.

6.28.1.2 Detailed IWF Behaviour

6.28.1.3 New Requirements for S6a/S6d

6.28.2 Mapping for Scenario Three

6.28.2.1 AVP Mapping

The AVP mapping from MAP- Reset to Diameter-RSR for scenario three is listed as table below:

Table 6.28.2.1-1: AVP Mapping from MAP- Reset to Diameter-RSR for scenario three

S6a/S6d Diameter AVP within target RSR	MAP parameter within source Reset	Comments
User Id List	N/A	This parameter shall be absent.
Supported-Features	N/A	This parameter shall be absent.
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	HLR number	This parameter shall be ignored.
N/A	HLR Id LIST	This parameter shall be ignored.

6.28.2.2 Detailed IWF Behaviour

6.28.2.3 New Requirements for S6a/S6d

6.28.3 Mapping for Scenario Four

6.28.3.1 AVP Mapping

The AVP mapping from MAP- Reset to Diameter-RSR for scenario four is listed as table below:

Table 6.28.3.1-1: AVP Mapping from MAP- Reset to Diameter-RSR for scenario four

S6a/S6d Diameter AVP within target RSR	MAP parameter within source Reset	Comments
User Id List	TBD	
Supported-Features	TBD	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	HLR number	This parameter shall be ignored.
N/A	HLR Id LIST	This parameter shall be ignored.

6.28.3.2 Detailed IWF Behaviour

6.28.3.3 New Requirements for S6a/S6d

6.29 Diameter-NOR Mapping to MAP-UpdateGprsLocation

6.29.1 Mapping for Scenario One

6.q9.1.1 AVP Mapping

The AVP mapping from Diameter-NOR to MAP-UpdateGprsLocation for scenario one is listed as table below:

Table 6.29.1.1-1: AVP Mapping from Diameter-NOR to MAP- UpdateGprsLocation for scenario one

MAP parameter within target UpdateGprsLocation	S6a/S6d Diameter AVP within source NOR	Comments
Invoke Id	N/A	IWF shall allocate an Invoke Id value locally and record a mapping entity between this Invoke Id value and the Session Id value received from the Diameter message.
IMSI	User-Name	
SGSN number	N/A	See section 4A.2 for detail.
SGSN address	N/A	See section 4A.2 for detail.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
SoLSA Support Indicator	N/A	This parameter shall be absent.
Super-Charger Supported in Serving Network Entity	N/A	This parameter shall be absent.
GPRS enhancements support indicator	N/A	IWF shall set this parameter.
Supported LCS Capability Sets	N/A	This parameter shall be absent.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
Inform Previous Network Entity	N/A	This parameter shall be absent.
PS LCS Not Supported by UE	N/A	This parameter shall be absent.
V-GMLC Address	N/A	This parameter shall be absent.
Call barring support indicator	N/A	This parameter shall be absent.
IMEISV	Terminal-Information	
Skip Subscriber Data Update	N/A	This parameter shall be absent.
Supported RAT Types Indicator	N/A	This parameter shall be absent.
N/A	PDN GW Identity	FFS: IWF shall record this parameter for this user.
N/A	APN	FFS: IWF shall record this parameter for this user.
N/A	NOR Flags	This parameter shall be ignored.
N/A	Supported Features	This parameter shall be ignored.

6.29.1.2 Detailed IWF Behaviour

6.29.1.3 New Requirements for Pre Rel8 Gr

6.29.2 Mapping for Scenario Three

6.29.2.1 AVP Mapping

The AVP mapping from Diameter-NOR to MAP- UpdateGprsLocation for scenario three is listed as table below:

Table 6.29.2.1-1: AVP Mapping from Diameter-NOR to MAP- UpdateGprsLocation for scenario three

MAP parameter within target UpdateGprsLocation	S6a/S6d Diameter AVP within source NOR	Comments
Invoke Id	N/A	IWF shall allocate an Invoke Id value locally and record a mapping entity between this Invoke Id value and the Session Id value received from the Diameter message.
IMSI	User-Name	
SGSN number	N/A	See section 4A.2 for detail.
SGSN address	N/A	See section 4A.2 for detail.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
SoLSA Support Indicator	N/A	This parameter shall be absent.
Super-Charger Supported in Serving Network Entity	N/A	This parameter shall be absent.
GPRS enhancements support indicator	N/A	IWF shall set this parameter.
Supported LCS Capability Sets	N/A	This parameter shall be absent.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
Inform Previous Network Entity	N/A	This parameter shall be absent.
PS LCS Not Supported by UE	N/A	This parameter shall be absent.
V-GMLC Address	N/A	This parameter shall be absent.
Call barring support indicator	N/A	This parameter shall be absent.
IMEISV	Terminal-Information	
Skip Subscriber Data Update	N/A	This parameter shall be absent.
Supported RAT Types Indicator	N/A	This parameter shall be absent.
N/A	PDN GW Identity	FFS: IWF shall record this parameter for this user.
N/A	APN	FFS: IWF shall record this parameter for this user.
N/A	NOR Flags	This parameter shall be ignored.
N/A	Supported Features	This parameter shall be ignored.

6.29.2.2 Detailed IWF Behaviour

6.29.2.3 New Requirements for Rel8 Gr

6.29.3 Mapping for Scenario Four

6.29.3.1 AVP Mapping

The AVP mapping from Diameter-NOR to MAP- UpdateGprsLocation for scenario four is listed as table below:

Table 6.29.3.1-1: AVP Mapping from Diameter-NOR to MAP- UpdateGprsLocation for scenario four

MAP parameter within target UpdateGprsLocation	S6a/S6d Diameter AVP within source NOR	Comments
Invoke Id	N/A	IWF shall allocate an Invoke Id value locally and record a mapping entity between this Invoke Id value and the Session Id value received from the Diameter message.
IMSI	User-Name	
SGSN number	N/A	See section 4A.2 for detail.
SGSN address	N/A	See section 4A.2 for detail.
Supported CAMEL Phases	N/A	IWF shall set this parameter that no CAMEL phase is supported.
SoLSA Support Indicator	N/A	This parameter shall be absent.
Super-Charger Supported in Serving Network Entity	N/A	This parameter shall be absent.
GPRS enhancements support indicator	N/A	IWF shall set this parameter.
Supported LCS Capability Sets	N/A	This parameter shall be absent.
Offered CAMEL 4 CSIs	N/A	This parameter shall be absent.
Inform Previous Network Entity	N/A	This parameter shall be absent.
PS LCS Not Supported by UE	N/A	This parameter shall be absent.
V-GMLC Address	N/A	This parameter shall be absent.
Call barring support indicator	N/A	This parameter shall be absent.
IMEISV	Terminal-Information	
Skip Subscriber Data Update	N/A	This parameter shall be absent.
Supported RAT Types Indicator	N/A	This parameter shall be absent.
TBD	PDN GW Identity	FFS: IWF shall record this parameter for this user.
TBD	APN	FFS: IWF shall record this parameter for this user.
TBD	NOR Flags	This parameter shall be ignored.
TBD	Supported Features	This parameter shall be ignored.

6.29.3.2 Detailed IWF Behaviour

6.29.3.3 New Requirements for Rel8 Gr

A new parameter which indicates PDN GW Identity is needed to be defined in MAP.

A new parameter which indicates APN is needed to be defined in MAP.

A new parameter which indicates NOR Flags is needed to be defined in MAP.

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

6.30 MAP-UpdateGprsLocation Mapping to Diameter-NOR

6.30.1 Mapping for Scenario Four

6.30.1.1 AVP Mapping

The AVP mapping from MAP- UpdateGprsLocation to Diameter-NOR for scenario four is listed as table below:

Table 6.30.1.1-1: AVP Mapping from MAP- UpdateGprsLocation to Diameter-NOR for scenario four

S6a/S6d Diameter AVP within target NOR	MAP parameter within source UpdateGprsLocation	Comments
Supported-Features	TBD	
User-Name	IMSI	
PDN GW Identity	TBD	
APN	TBD	
NOR Flags	TBD	
Terminal-Information	IMEISV	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	SGSN number	See section 4A.2 for detail.
N/A	SGSN address	See section 4A.2 for detail.
N/A	Supported CAMEL Phases	IWF shall ignore this AVP.
N/A	SoLSA Support Indicator	IWF shall ignore this AVP.
N/A	Super-Charger Supported in Serving Network Entity	IWF shall ignore this AVP.
N/A	GPRS enhancements support indicator	IWF shall ignore this AVP.
N/A	Supported LCS Capability Sets	IWF shall ignore this AVP.
N/A	Offered CAMEL 4 CSIs	IWF shall ignore this AVP.
N/A	Inform Previous Network Entity	IWF shall ignore this AVP.
N/A	PS LCS Not Supported by UE	IWF shall ignore this AVP.
N/A	V-GMLC Address	IWF shall ignore this AVP.
N/A	Call barring support indicator	IWF shall ignore this AVP.
N/A	Skip Subscriber Data Update	IWF shall ignore this AVP.
N/A	Supported RAT Types Indicator	IWF shall ignore this AVP.

6.30.1.2 Detailed IWF Behaviour

6.30.1.3 New Requirements for S6a/S6d

6.31 Diameter-NOA Mapping to MAP-UpdateGprsLocation Ack

6.31.1 Mapping for Scenario Four

6.31.1.1 AVP Mapping

The AVP mapping from Diameter-NOA to MAP- UpdateGprsLocation Ack for scenario four is listed as table below:

Table 6.31.1.1-1: AVP Mapping from Diameter-NOA to MAP- UpdateGprsLocation Ack for scenario four

MAP parameter within target UpdateGprsLocation Ack	S6a/S6d Diameter AVP within source NOA	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
ADD Capability	N/A	This parameter shall be absent.
HLR number	N/A	See section 4A.2 for detail.
User error	Result	
TBD	Supported Features	

6.31.1.2 Detailed IWF Behaviour

6.31.1.3 New Requirements for Rel8 Gr

A new parameter which indicates Supported Feature of EPS is needed to be defined in MAP.

A new parameter which describes the Result is needed to be defined in MAP.

6.32 MAP-UpdateGprsLocation Ack Mapping to Diameter-NOA

6.32.1 Mapping for Scenario One

6.32.1.1 AVP Mapping

The AVP mapping from MAP- UpdateGprsLocation Ack to Diameter-NOA for scenario one is listed as table below:

Table 6.32.1.1-1: AVP Mapping from MAP- UpdateGprsLocation Ack to Diameter-NOA for scenario one

S6a/S6d Diameter AVP within target NOA	MAP parameter within source UpdateGprsLocation Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	ADD Capability	This parameter shall be ignored.
N/A	HLR number	This parameter shall be ignored.

6.32.1.2 Detailed IWF Behaviour

6.32.1.3 New Requirements for S6a/S6d

6.32.2 Mapping for Scenario Three

6.32.2.1 AVP Mapping

The AVP mapping from MAP- UpdateGprsLocation Ack to Diameter-NOA for scenario three is listed as table below:

Table 6.32.2.1-1: AVP Mapping from MAP- UpdateGprsLocation Ack to Diameter-NOA for scenario three

S6a/S6d Diameter AVP within target NOA	MAP parameter within source UpdateGprsLocation Ack	Comments
Supported-Features	N/A	This parameter shall be absent.
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	ADD Capability	This parameter shall be ignored.
N/A	HLR number	This parameter shall be ignored.

6.32.2.2 Detailed IWF Behaviour

6.32.2.3 New Requirements for S6a/S6d

6.32.3 Mapping for Scenario Four

6.32.3.1 AVP Mapping

The AVP mapping from MAP- UpdateGprsLocation Ack to Diameter-NOA for scenario four is listed as table below:

Table 6.32.3.1-1: AVP Mapping from MAP- UpdateGprsLocation Ack to Diameter-NOA for scenario four

S6a/S6d Diameter AVP within target NOA	MAP parameter within source UpdateGprsLocation Ack	Comments
Supported-Features	TBD	
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
N/A	ADD Capability	This parameter shall be ignored.
N/A	HLR number	This parameter shall be ignored.

6.32.3.2 Detailed IWF Behaviour

6.32.3.3 New Requirements for S6a/S6d

6.33 Diameter-ECR Mapping to MAP-CheckImei (Pre Rel8)

6.33.1 Mapping for Scenario Two

6.33.1.1 AVP Mapping

The AVP mapping from Diameter-ECR to MAP- CheckImei for scenario two is listed as table below:

Table 6.33.1.1-1: AVP Mapping from Diameter-ECR to MAP- CheckImei for scenario two

MAP parameter within target CheckImei	S6a/S6d Diameter AVP within source ECR	Comments
Invoke Id	N/A	IWF shall set the Invoke Id value according to the Session Id value received from the Diameter message and the recorded mapping between Invoke Id value and the Session Id value.
IMEI	Terminal Information	This parameter shall be absent.
IMEISV	Terminal Information	
Requested Equipment Info	Terminal Information	This parameter shall be absent.
N/A	User Name	FFS: Whether this parameter is needed in S6a/S6d.
N/A	MSISDN	FFS: Whether this parameter is needed in S6a/S6d.

6.33.1.2 Detailed IWF Behaviour

6.33.1.3 New Requirements for Pre Rel8 Gr

6.34 MAP- CheckImei Ack (Pre Rel8) Mapping to a Diameter-ECA

6.34.1 Mapping for Scenario Two

6.34.1.1 AVP Mapping

The AVP mapping from MAP- CheckImei Ack to Diameter-ECA for scenario two is listed as table below:

Table 6.34.1.1-1: AVP Mapping from MAP- CheckImei Ack to Diameter-ECA for scenario two

S6a/S6d Diameter AVP within target ECA	MAP parameter within source CheckImei Ack	Comments
Equipment Status	Equipment status	
Result	User error	
N/A	Invoke Id	IWF shall set the Session Id value according to the Invoke Id value received from the MAP message and the recorded mapping between Invoke Id value and the Session Id value.
FFS	BMUEF	FFS: Whether this parameter is needed in S6a/S6d.

6.34.1.2 Detailed IWF Behaviour

6.34.1.3 New Requirements for S6a/S6d

7 Conclusions

The IWF scenario one, two, three, four should be specified in Rel-8.

The IWF scenario five is not supported in Rel-8.The security solution for IWF scenario one is based on the solution as described in section 4A.3.

The message routing mechanism and the user data handling principle should be specified as described in section 4A.1and 4A.2.

The detailed message mapping is described in the new TS 29.305 [8] for IWF.

Annex A:
Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2008-12	CT#42	CP-080712			V2.0.0 Approved in CT#42	2.0.0	8.0.0