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# Application Programming Interface Document

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Home Subscriber Server API Specification

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Version 1.0

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**Document Information****Document Sign Off**

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**Objective**

**Document Scope**

The information provided in this document specifies the Application Programming Interface for HSS and three of its reference points , namely Cx,Dx and Sh reference points. For complete scope of Home Subscriber Server please see the Project Proposal.

## 1. Abbreviations

Following are the abbreviations that have been used in the document:

<b>AV</b>	Authentication Vector
<b>AVP</b>	Attribute Value Pair
<b>HSS</b>	Home Subscriber Server
<b>UAR</b>	User Authorization Request
<b>UAA</b>	User Authorization Answer
<b>SAR</b>	Server Assignment Request
<b>SAA</b>	Server Assignment Answer
<b>RTR</b>	Registration Termination Request
<b>RTA</b>	Registration Termination Answer
<b>LIR</b>	Location Information Request
<b>LIA</b>	Location Information Answer
<b>MAR</b>	Multimedia Auth Request
<b>MAA</b>	Multimedia Auth Answer
<b>UDR</b>	User Data Request
<b>UDA</b>	User Data Answer
<b>PUR</b>	Profile Update Request
<b>PUA</b>	Profile Update Answer
<b>SNR</b>	Subscribe Notification Request
<b>SNA</b>	Subscribe Notification Answer
<b>PNR</b>	Push Notification Request
<b>PNA</b>	Push Notification Answer

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## 2. Cx/Dx Reference Points

### 2.1. Cx/Dx Structures

#### 2.1.1. CxDxAPIReturnVal\_t

```
typedef enum CxDxAPIReturnVal  
{  
    CxDxAPI-Retval-Success,  
  
    CxDxAPI-Retval-Failure  
  
} CxDxAPIReturnVal_t;
```

#### **Enumeration Explanation**

This enumeration defines the return type of the Cx/Dx APIs.

#### **Fields:**

CxDxAPI-Retval-Success

This enumeration value is returned in case of success.

CxDxAPI-Retval-Failure

This enumeration value is returned in case of failure.

#### 2.1.2. CxQueryParams\_t

```
typedef CxQueryParams  
{  
    DAPI-HANDLE-AVP hAVPPublicIdentity;  
    DAPI-HANDLE-AVP hAVP-VisitedNetworkID;  
    DAPI-HANDLE-AVP hUserAuthType;  
    DAPI-HANDLE-AVP hAVP-UserName;  
    DAPI-HANDLE-AVP hAVP-DestHostOrRealm;  
} CxQueryParams_t;
```

#### **Structure Explanation**

This structure contains the AVP parameters to be passed to the CreateCxQuery API.

#### **Fields:**

DAPI-HANDLE-AVP hAVPPublicIdentity

This field contains the handle to the Public Identity AVP.

DAPI-HANDLE-AVP hAVP-VisitedNetworkID

This field contains the handle to the Visited Network ID AVP.

DAPI-HANDLE-AVP hUserAuthType

This field contains the handle to the User Auth Type AVP.

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP .

DAPI-HANDLE-AVP hAVP-DestHostOrRealm

This field contains the handle to the Destination Host or the Destination Realm AVP.

### 2.1.3. CxSelectPullParams\_t

```
typedef CxSelectPullParams
{
    DAPI-HANDLE-AVP hAVPPublicIdentity;
    DAPI-HANDLE-AVP hAVP-VisitedNetworkID;
    DAPI-HANDLE-AVP hUserAuthType;
    DAPI-HANDLE-AVP hAVP-UserName;
    DAPI-HANDLE-AVP hAVP-DestHostOrRealm;
} CxSelectPullParams_t;
```

#### Structure Explanation

This structure contains the AVP parameters to be passed to the CreateCxSelectPull API.

#### Fields:

DAPI-HANDLE-AVP hAVPPublicIdentity

This field contains the handle to the Public Identity AVP.

DAPI-HANDLE-AVP hAVP-VisitedNetworkID

This field contains the handle to the Visited Network ID AVP.

DAPI-HANDLE-AVP hUserAuthType

This field contains the handle to the User Auth Type AVP.

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP-DestHostOrRealm

This field contains the handle to the Destination Host or Destination Realm AVP.

#### 2.1.4. CxPutParams\_t

```
typedef CxPutParams
{
    DAPI-HANDLE-AVP hAVPPublicIdentity;
    DAPI-HANDLE-AVP hAVP-VisitedNetworkID;
    DAPI-HANDLE-AVP hUserAuthType;
    DAPI-HANDLE-AVP hAVP-UserName;
    DAPI-HANDLE-AVP hAVP-DestHostOrRealm
} CxPutParams_t;
```

##### Structure Explanation

This structure contains the AVP parameters to be passed to the CreateCxPut API.

##### Fields:

DAPI-HANDLE-AVP hAVPPublicIdentity

This field contains the handle to the Public Identity AVP.

DAPI-HANDLE-AVP hAVP-VisitedNetworkID

This field contains the handle to the Visited Network ID AVP.

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hUserAuthType

This field contains the handle to the User Auth Type AVP.

DAPI-HANDLE-AVP hAVP-DestHostOrRealm

This field contains the handle to the Destination Host or Destination Realm AVP.

#### 2.1.5. CxPullParams\_t

```
Typedef struct CxPullParams
{
    DAPI-HANDLE-AVP hAVP-PublicID;
    DAPI-HANDLE-AVP hAVP-SrvName;
    DAPI-HANDLE-AVP hAVP-UsrName;
    DAPI-HANDLE-AVP hAVP-SrvAsgnType;
    DAPI-HANDLE-AVP hAVP-UserDataAvail;
    DAPI-HANDLE-AVP hAVP-DestHost;
    DAPI-HANDLE-AVP hAVP-WildcardPSI;
} CxPullParams_t;
```

**Structure Explanation**

This structure contains the AVP parameters to be passed to the CreateCxPull API.

**Fields:**

DAPI-HANDLE-AVP hAVP-PublicID

This field contains the handle to the Public Identity AVP.

DAPI-HANDLE-AVP hAVP-SrvName

This field contains the handle to the Server Name AVP.

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP-SrvAsgnType

This field contains the handle to the Server Assignment Type AVP.

DAPI-HANDLE-AVP hAVP-UserDataAvail

This field contains the handle to the User Data Available AVP.

DAPI-HANDLE-AVP hAVP-DestHost

This field contains the handle to the Destination Host AVP

DAPI-HANDLE-AVP hAVP-WildcardPSI

This field contains the handle to the Wildcarded PSI AVP.

**2.1.6. CxPutRespParams\_t**

```
typedef CxPutRespParams
{
    DAPI-HANDLE-AVP hAVP-UserName;
    DAPI-HANDLE-AVP hAVP-ResCode;
    DAPI-HANDLE-AVP hAVP-UserData;
    DAPI-HANDLE-AVP hAVP-ChargingInfo;
    DAPI-HANDLE-AVP hAVP-AssocIDs;
} CxPutRespParams_t;
```

**Structure Explanation**

This structure contains the AVP parameters to be passed to the CreateCxPutResp API.

**Fields:**

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP-ResCode  
This field contains the handle to the Result Code AVP.

DAPI-HANDLE-AVP hAVP-UserData  
This field contains the handle to the User Data AVP.

DAPI-HANDLE-AVP hAVP-ChargingInfo  
This field contains the handle to the Charging Info AVP.

DAPI-HANDLE-AVP hAVP-AssocIDs  
This field contains the handle to the Associated IDs AVP.

### 2.1.7. CxPullRespParams\_t

```
typedef CxPullRespParams  
{  
    DAPI-HANDLE-AVP hAVP-UserName;  
    DAPI-HANDLE-AVP hAVP-ResCode;  
    DAPI-HANDLE-AVP hAVP-UserData;  
    DAPI-HANDLE-AVP hAVP-ChargingInfo;  
    DAPI-HANDLE-AVP hAVP-AssocIDs;  
} CxPullRespParams_t;
```

#### Structure Explanation

This structure contains the AVP parameters to be passed to the CreateCxPullResp API.

#### Fields:

DAPI-HANDLE-AVP hAVP-UserName  
This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP-ResCode  
This field contains the handle to the Result Code AVP.

DAPI-HANDLE-AVP hAVP-UserData  
This field contains the handle to the User Data AVP.

DAPI-HANDLE-AVP hAVP-ChargingInfo  
This field contains the handle to the Charging Info AVP.

DAPI-HANDLE-AVP hAVP-AssocIDs  
This field contains the handle to the Associated IDs AVP.

### 2.1.8. CxDeregisterParams\_t

```
typedef CxDeregisterParams
{
    DAPI-HANDLE-AVP hAVP-PublicID;
    DAPI-HANDLE-AVP hAVP-UserName;
    DAPI-HANDLE-AVP hAVP-DeregReason;
    DAPI-HANDLE-AVP hAVP-DestHost;
    DAPI-HANDLE-AVP hAVP-AssocIDs;
} CxDeregisterParams_t;
```

#### Structure Explanation

This structure contains the AVP parameters to be passed to the CreateCxDeregister API.

#### Fields:

DAPI-HANDLE-AVP hAVP-PublicID

This field contains the handle to the Public Identity AVP.

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP-DeregReason

This field contains the handle to the Deregistration reason AVP.

DAPI-HANDLE-AVP hAVP-DestHost

This field contains the handle to the Destination Host AVP.

DAPI-HANDLE-AVP hAVP-AssocIDs

This field contains the handle to the Associated IDs AVP.

### 2.1.9. CxAVReqParams\_t

```
typedef CxAVReqParams
{
    DAPI-HANDLE-AVP hAVP-PublicID;
    DAPI-HANDLE-AVP hAVP-UserName;
    DAPI-HANDLE-AVP hAVP-SIPNumAuthItems;
    DAPI-HANDLE-AVP hAVP-SIPAuthDataItem;
    DAPI-HANDLE-AVP hAVP-SrvName;
    DAPI-HANDLE-AVP hAVP-DestHost
} CxAVReqParams_t;
```

#### Structure Explanation

This structure contains the AVP parameters to be passed to the CreateCxAVReq API.

**Fields:**

DAPI-HANDLE-AVP hAVP-PublicID

This field contains the handle to the Public Identity AVP.

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP-SIPNumAuthItems

This field contains the handle to the SIP Number of Auth Items AVP.

DAPI-HANDLE-AVP hAVP-SIPAuthDataItem

This field contains the handle to the SIP Auth Data Item AVP.

DAPI-HANDLE-AVP hAVP-SrvName

This field contains the handle to the Server Name AVP.

DAPI-HANDLE-AVP hAVP-DestHost

This field contains the handle to the Destination Host AVP.

**2.1.10. CxAVReqRespParams\_t**

```
typedef CxAVReqRespParams
{
    DAPI-HANDLE-AVP hAVP-PublicID;
    DAPI-HANDLE-AVP hAVP-UserName;
    DAPI-HANDLE-AVP hAVP-SIPNumAuthItems;
    DAPI-HANDLE-AVP hAVP-SIPAuthDataItem;
    DAPI-HANDLE-AVP hAVP-ResCode;
} CxAVReqRespParams_t;
```

**Structure Explanation**

This structure contains the AVP parameters to be passed to the CreateCxAVReqResp API.

**Fields:**

DAPI-HANDLE-AVP hAVP-PublicID

This field contains the handle to the Public Identity AVP.

DAPI-HANDLE-AVP hAVP-UserName

This field contains the handle to the User Name AVP.

DAPI-HANDLE-AVP hAVP-SIPNumAuthItems

This field contains the handle to the SIP Number of Auth Items AVP.

DAPI-HANDLE-AVP hAVP-SIPAuthDataItem

This field contains the handle to the SIP Auth Data Item AVP.

DAPI-HANDLE-AVP hAVP-ResCode

This field contains the handle to the Result Code AVP.

## 2.2. Cx/Dx APIs

### 2.2.1. CreateCxQuery

```
CxDxAPIRetVal_t CreateCxQuery(DAPI-HANDLE-DIAM-MSG* phDiaMsgUAR,
CxQueryParams_t oParams );
```

#### Purpose

The purpose of this API is to create a CxQuery based diameter UAR message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgUAR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created UAR message
oParams	CxQueryParams_t	In	This structure contains the AVP parameters for this API.

#### Return value

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

### 2.2.2. CreateCxSelectPull

```
CxDxAPIRetVal_t CreateCxSelectPull(DAPI-HANDLE-DIAM-MSG* phDiaMsgUAR,
CxSelectPullParams_t oParams );
```

#### Purpose

This function is used to Create a CxSelectPull based UAR message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgUAR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created UAR message
oParams	CxSelectPullParams_t	In	This structure contains

the AVP parameters for this API.

### Return value

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

### 2.2.3. CreateCxQueryResp

```
CxDxAPIReturnVal_t CreateCxQueryResp (DAPI-HANDLE-DIAM-MSG* phDiaMsgUAA ,
DAPI-HANDLE-AVP hAVPResult , DAPI-HANDLE-AVP hAVP-SrvCapab , DAPI-HANDLE-AVP
hAVP-SrvName);
```

### Purpose

This function is used to create a CxQueryResp based UAA diameter message.

### Parameters

Name	Type	In/out	Description
phDiaMsgUAA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created UAA message
hAVPResult	DAPI-HANDLE-AVP	In	This is the handle to the Result AVP.
hAVP-SrvCapab	DAPI-HANDLE-AVP	In	This is the handle to the Server Capabilities AVP.
hAVP-SrvName	DAPI-HANDLE-AVP	In	This is the handle to the Server Name AVP.

### Return value

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

### 2.2.4. CreateCxPut

```
CxDxAPIReturnVal_t CreateCxPut(DAPI-HANDLE-DIAM-MSG* phDiaMsgSAR ,
CxPutParams_t oParams );
```

### Purpose

This function is used to create a CxPut based SAR Diameter message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgSAR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created SAR message
oParams	CxPutParams_t	In	This structure contains the AVP parameters for this API.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

**2.2.5. CreateCxPull**

```
CxDxAPIRetVal_t CreateCxPull(DAPI-HANDLE-DIAM-MSG* phDiaMsgSAR ,  
CxPullParams_t oParams );
```

**Purpose**

This function is used to create a CxPull based SAR Diameter message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgSAR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created SAR message
oParams	CxPullParams_t	In	This structure contains the AVP parameters for this API.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

**2.2.6. CreateCxPutResp**

```
CxDxAPIRetVal_t CreateCxPutResp(DAPI-HANDLE-DIAM-MSG* phDiaMsgSAA  
,CxPutRespParams_t oParams );
```

**Purpose**

This function is used to create a CxPutResp based Diameter SAA message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgSAA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created SAA message
oParams	CxPutRespParams_t	In	This structure contains the AVP parameters for this API.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

**2.2.7. CreateCxPullResp**

```
CxDxAPIReturnVal_t CreateCxPullResp (DAPI-HANDLE-DIAM-MSG* phDiaMsgSAA ,CxPutRespParams_t oParams );
```

**Purpose**

This function is used to create a CxPullResp based Diameter SAA message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgSAA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created SAA message
oParams	CxPutRespParams_t	In	This structure contains the AVP parameters for this API.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

**2.2.8. CreateCxDeregister**

```
CxDxAPIReturnVal_t CreateCxDeregister(DAPI-HANDLE-DIAM-MSG* phDiaMsgRTR , CxDeregisterParams_t oParams );
```

**Purpose**

This function is used to create a CxDeregister based Diameter RTR message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgRTR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created RTR message
oParams	CxDeregisterParams_t	In	This structure contains the AVP parameters for this API.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

**2.2.9. CreateCxDeregisterResp**

*CxDxAPIReturnVal\_t CreateCxDeregisterResp(DAPI-HANDLE-DIAM-MSG\* phDiaMsgRTA , DAPI-HANDLE-AVP hAVP-ResCode , DAPI-HANDLE-AVP hAVP-AssocIDs);*

**Purpose**

This function is used to create a CxDeregisterResp based Diameter RTA message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgRTA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created RTA message
hAVP-ResCode	DAPI-HANDLE-AVP	In	This is the handle to the Result Code AVP.
hAVP-AssocIDs	DAPI-HANDLE-AVP	In	This is the handle to the Associated IDs AVP.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

### 2.2.10. CreateCxLocationQuery

```
CxDxAPIReturnVal_t CreateCxLocationQuery(DAPI-HANDLE-DIAM-MSG* phDiaMsgLIR ,
DAPI-HANDLE-AVP hAVP-PublicID , DAPI-HANDLE-AVP hAVP-DestHostorRealm , DAPI-
HANDLE-AVP hAVP-OrigRequest );
```

#### Purpose

This function is used to create the CxLocationQuery based Diameter LIR message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgLIR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created LIR message
hAVP-PublicID	DAPI-HANDLE-AVP	In	This is the handle to the Public Identity AVP.
hAVP-DestHostorRealm	DAPI-HANDLE-AVP	In	This is the handle to the Destination Host or Destination Realm AVP.
hAVP-OrigRequest	DAPI-HANDLE-AVP	In	This is the handle to the Origin Request AVP.

#### Return value

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

### 2.2.11. CreateCxLocationQueryResp

```
CxDxAPIReturnVal_t CreateCxLocationQueryResp(DAPI-HANDLE-DIAM-MSG*
phDiaMsgLIA , DAPI-HANDLE-AVP hAVP-ResCode , DAPI-HANDLE-AVP hAVP-SrvName ,
DAPI-HANDLE-AVP hAVP-SrvCapab ,DAPI-HANDLE-AVP hAVP-WildcardPSI);
```

#### Purpose

This function is used to create the CxLocationQueryResp based Diameter LIA message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgLIA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created LIA message
hAVP-ResCode	DAPI-HANDLE-AVP	In	This is the handle to the Result Code AVP.
hAVP-SrvName	DAPI-HANDLE-AVP	In	This is the handle to the Server Name AVP.
hAVP-SrvCapab	DAPI-HANDLE-AVP	In	This is the handle to the Server Capabilities AVP.
hAVP-WildcardPSI	DAPI-HANDLE-AVP	In	This is the handle to the wildcarded PSI AVP.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

**2.2.12. CreateCxAVReq**

```
CxDxAPIRetVal_t CreateCxAVReq(DAPI-HANDLE-DIAM-MSG* phDiaMsgMAR,
CxAVReqParams_t oParams );
```

**Purpose**

This function is used to create the CxAVReq based Diameter MAR message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgMAR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created MAR message
oParams	CxAVReqParams_t	In	This structure contains the AVP parameters for this API.

**Return value**

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

### 2.2.13. CreateCxAVReqResp

```
CxDxAPIReturnVal_t CreateCxAVReqResp(DAPI-HANDLE-DIAM-MSG* phDiaMsgMAA ,
CxAVReqRespParams_t oParams );
```

#### Purpose

This function is used to create the CxAVReqResp based Diameter MAA message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgMAA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created MAA message
oParams	CxAVReqRespParams_t	In	This structure contains the AVP parameters for this API.

#### Return value

The function returns 'CxDxAPI-Retval-Success' in case of success and 'CxDxAPI-Retval-Failure' in case of failure.

## 3. Sh Reference Point

### 3.1. Sh Structures

#### 3.1.1. ShAPIReturnVal\_t

```
Typedef enum ShAPIReturnVal
{
    ShAPI-Retval-Success,
    ShAPI-Retval-Failure
} ShAPIReturnVal_t;
```

#### Enumeration Explanation

This enumeration contains the possible return codes that may be returned by the Sh APIs

#### Fields:

ShAPI-Retval-Success

This enumeration value is returned in case of success.

### ShAPI-Retval-Failure

This enumeration value is returned in case of failure.

### 3.1.2. *ShPullParams\_t*

```
typedef ShPullParams
{
    DAPI-HANDLE-AVP hAVP-UserID;
    DAPI-HANDLE-AVP hAVP-WildcardPSI;
    DAPI-HANDLE-AVP hAVP-DataRef;
    DAPI-HANDLE-AVP hAVP-IdentSet;
    DAPI-HANDLE-AVP hAVP-ReqDomain;
    DAPI-HANDLE-AVP hAVP-CurrLocation;
    DAPI-HANDLE-AVP hAVP-ServiceIndic;
    DAPI-HANDLE-AVP hAVP-OrigHost;
    DAPI-HANDLE-AVP hAVP-SrvName;
    DAPI-HANDLE-AVP hAVP-DSAI-Tag;
} ShPullParams_t;
```

#### **Structure Explanation**

This structure contains the AVP parameters for the CreateShPull API.

#### **Fields:**

##### DAPI-HANDLE-AVP hAVP-UserID

This field is a handle to the User Identity AVP.

##### DAPI-HANDLE-AVP hAVP-WildcardPSI

This field is a handle to the wildcarded PSI AVP.

##### DAPI-HANDLE-AVP hAVP-DataRef

This field is a handle to the Data reference AVP.

##### DAPI-HANDLE-AVP hAVP-IdentSet

This field is a handle to the Identity Set AVP.

##### DAPI-HANDLE-AVP hAVP-ReqDomain

This field is a handle to the Req Domain AVP.

##### DAPI-HANDLE-AVP hAVP-CurrLocation

This field is a handle to the Current Location AVP.

##### DAPI-HANDLE-AVP hAVP-ServiceIndic

This field is a handle to the Service Indicator AVP.

##### DAPI-HANDLE-AVP hAVP-OrigHost

This field is a handle to the Origin Host AVP.

DAPI-HANDLE-AVP hAVP-SrvName  
This field is a handle to the Server Name AVP.

DAPI-HANDLE-AVP hAVP-DSAI-Tag  
This field is a handle to the DSAI Tag AVP.

### 3.1.3. ShUpdateParams\_t

```
typedef ShUpdateParams
{
    DAPI-HANDLE-AVP hAVP-UserID;
    DAPI-HANDLE-AVP hAVP-WildcardPSI;
    DAPI-HANDLE-AVP hAVP-DataRef;
    DAPI-HANDLE-AVP hAVP-UserData;
    DAPI-HANDLE-AVP hAVP-OrigHost;
} ShUpdateParams_t;
```

#### Structure Explanation

This structure contains the AVP parameters for the CreateShUpdate API.

#### Fields:

DAPI-HANDLE-AVP hAVP-UserID  
This field is a handle to the User Identity AVP.

DAPI-HANDLE-AVP hAVP-WildcardPSI  
This field is a handle to the Wilcarded PSI AVP

DAPI-HANDLE-AVP hAVP-DataRef  
This field is a handle to the Data Reference AVP

DAPI-HANDLE-AVP hAVP-UserData  
This field is a handle to the User Data AVP.

DAPI-HANDLE-AVP hAVP-OrigHost  
This field is a handle to the Origin Host AVP.

### 3.1.4. ShSubsNotifParams\_t

```
typedef ShSubsNotifParams
{
    DAPI-HANDLE-AVP hAVP-UserID;
    DAPI-HANDLE-AVP hAVP-WildcardPSI;
    DAPI-HANDLE-AVP hAVP-DataRef;
    DAPI-HANDLE-AVP hAVP-SubsreqType;
    DAPI-HANDLE-AVP hAVP-SendDataIndication;
    DAPI-HANDLE-AVP hAVP-ServiceIndic;
}
```

```
DAPI-HANDLE-AVP hAVP-OrigHost;  
DAPI-HANDLE-AVP hAVP-SrvName;  
DAPI-HANDLE-AVP hAVP-ExpiryTime;  
DAPI-HANDLE-AVP hAVP-DSAI-Tag;  
DAPI-HANDLE-AVP hAVP-IdentSet;  
} ShSubsNotifParams_t;
```

### Structure Explanation

This structure contains the AVP parameters to the CreateShSubsNotif API.

#### Fields:

DAPI-HANDLE-AVP hAVP-UserID

This field is a handle to the User Identity AVP.

DAPI-HANDLE-AVP hAVP-WildcardPSI

This field is a handle to the Wildcarded PSI AVP.

DAPI-HANDLE-AVP hAVP-DataRef

This field is a handle to the Data Reference AVP.

DAPI-HANDLE-AVP hAVP-SubsreqType

This field is a handle to the Subs Request Type AVP.

DAPI-HANDLE-AVP hAVP-SendDataIndication

This field is a handle to the Send Data Indication AVP.

DAPI-HANDLE-AVP hAVP-ServiceIndic

This field is a handle to the Service Indicator AVP.

DAPI-HANDLE-AVP hAVP-OrigHost

This field is a handle to the Origin Host AVP.

DAPI-HANDLE-AVP hAVP-SrvName

This field is a handle to the Server Name AVP.

DAPI-HANDLE-AVP hAVP-ExpiryTime

This field is a handle to the Expiry Time AVP.

DAPI-HANDLE-AVP hAVP-DSAI-Tag

This field is a handle to the DSAI Tag AVP.

DAPI-HANDLE-AVP hAVP-IdentSet

This field is a handle to the Identity Set AVP.

## 3.2. Sh APIs

### 3.2.1. CreateShPull

```
ShAPIReturnVal_t CreateShPull (DAPI-HANDLE-DIAM-MSG* phDiaMsgUDR ,  
ShPullParams_t oParams );
```

#### Purpose

This function creates an ShPull based Diameter UDR message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgUDR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created UDR message
oParams	ShPullParams_t	In	This is the structure containing the AVP parameters for the current API.

#### Return value

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.

### 3.2.2 CreateShPullResp

```
ShAPIReturnVal_t CreateShPullResp(DAPI-HANDLE-DIAM-MSG* phDiaMsgUDA ,  
DAPI-HANDLE-AVP hAVP-ResCode , DAPI-HANDLE-AVP hAVP-WildcardPSI , DAPI-  
HANDLE-AVP hAVP-UserData)
```

#### Purpose

This function creates an ShPullResp based Diameter UDA message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgUDA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created UDA message
hAVP-ResCode	DAPI-HANDLE-AVP	In	This is the handle to the Result Code AVP

<b>hAVP-WildcardPSI</b>	DAPI-HANDLE-AVP	In	This is the handle to the Wildcarded PSI AVP.
<b>hAVP-UserData</b>	DAPI-HANDLE-AVP	In	This is the handle to the User Data AVP.

### Return value

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.

### 3.2.3. CreateShUpdate

```
ShAPIRetVal_t CreateShUpdate(DAPI-HANDLE-DIAM-MSG* phDiaMsgPUR ,  
ShUpdateParams_t oParams );
```

### Purpose

This function creates an ShUpdate based Diameter PUR message.

### Parameters

Name	Type	In/out	Description
<b>phDiaMsgPUR</b>	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created PUR message
<b>oParams</b>	ShUpdateParams_t	In	This is the structure containing the AVP parameters for the current API.

### Return value

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.

### 3.2.4. CreateShUpdateResp

*ShAPIReturnVal\_t CreateShUpdateResp(DAPI-HANDLE-DIAM-MSG\* phDiaMsgPUA , DAPI-HANDLE-AVP hAVP-ResCode , DAPI-HANDLE-AVP hAVP-WildcardPSI );*

#### Purpose

This function creates an ShUpdateResp based Diameter PUA message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgPUA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created PUA message
hAVP-ResCode	DAPI-HANDLE-AVP	In	This is the handle to the Result Code AVP
hAVP-WildcardPSI	DAPI-HANDLE-AVP	In	This is the handle to the Wildcarded PSI AVP.

#### Return value

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.

### 3.2.5. CreateShSubsNotif

*ShAPIReturnVal\_t CreateShSubsNotif (DAPI-HANDLE-DIAM-MSG\* phDiaMsgSNR , ShSubsNotifParams\_t oParams );*

#### Purpose

This function creates an ShSubsNotif based Diameter SNR Message.

#### Parameters

Name	Type	In/out	Description
phDiaMsgSNR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created SNR message
oParams	ShSubsNotifParams_t	In	This is the structure containing the AVP parameters for the current API.

**Return value**

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.

**3.2.6. CreateShSubsNotifResp**

*ShAPIReturnVal\_t CreateShSubsNotifResp (DAPI-HANDLE-DIAM-MSG\* phDiaMsgSNA , DAPI-HANDLE-AVP hAVP-ExpiryTime , DAPI-HANDLE-AVP hAVP-UserData , DAPI-HANDLE-AVP hAVP-WildcardPSI , DAPI-HANDLE-AVP hAVP-ResCode);*

**Purpose**

This function creates an ShSubsNotifResp based Diameter SNA message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgSNA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created SNA message
hAVP-ExpiryTime	DAPI-HANDLE-AVP	In	This is the handle to the Expiry Time AVP.
hAVP-UserData	DAPI-HANDLE-AVP	In	This is the handle to the User Data AVP
hAVP-WildcardPSI	DAPI-HANDLE-AVP	In	This is the handle to the wildcarded PSI AVP
hAVP-ResCode	DAPI-HANDLE-AVP	In	This is the handle to the Result Code AVP

**Return value**

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.

**3.2.7. CreateShNotif**

*ShAPIReturnVal\_t CreateShNotif(DAPI-HANDLE-DIAM-MSG\* phDiaMsgPNR , DAPI-HANDLE-AVP hAVP-UserID , DAPI-HANDLE-AVP hAVP-WildcardPSI , DAPI-HANDLE-AVP hAVP-UserData);*

**Purpose**

This function creates an ShNotif based Diameter PNR message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgPNR	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created PNR message
hAVP-UserID	DAPI-HANDLE-AVP	In	This is the handle to the User Identity AVP.
hAVP-WildcardPSI	DAPI-HANDLE-AVP	In	This is the handle to the wildcarded PSI AVP.
hAVP-UserData	DAPI-HANDLE-AVP	In	This is the handle to the User Data AVP.

**Return value**

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.

**3.2.8. CreateShNotifResp**

*ShAPIRetVal\_t CreateShNotifResp(DAPI-HANDLE-DIAM-MSG\* phDiaMsgPNA , DAPI-HANDLE-AVP hAVP-ResCode);*

**Purpose**

This function creates an ShNotifResp based Diameter PNA message.

**Parameters**

Name	Type	In/out	Description
phDiaMsgPNA	DAPI-HANDLE-DIAM-MSG*	Out	This is a pointer to Diameter message handle in which the API will return the created PNA message
hAVP-ResCode	DAPI-HANDLE-AVP	In	This is the handle to the Result Code AVP.

**Return value**

The function returns 'ShAPI-Retval-Success' in case of success and 'ShAPI-Retval-Failure' in case of failure.