**SBC Interface**

# Resource Allocate

### Request

\*\* Format url: "/AppName/version/${SubNode}/${command}/${x-session-id}?"

|  |  |
| --- | --- |
| **Protocol** | HTTP |
| **Method** | POST |
| **url (Request-URI)** | **Example:** = /P-WRTC/1.0.0/SBC/**ResourceAllocate**/668100100001? |

#### Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | | **Type** | **M/O** | **Description / Example** |
| Protocol | |  |  | HTTP |
| url | | String | M | url for request message to SBC  **Format url:** "/AppName/version/${SubNode}/${command}/${x-session-id}?"  **SubNode:**   * SBC   **Command:**   * ResourceAllocate * ResourceUnAllocate |
| **Header** | |  |  |  |
| Host | | String | M | Destination of SBC  Get value from EC02 configuration named **“SBC-HTTP-Address”** |
| Content-Type | | String | M | application/json |
| **Body** | |  |  |  |
|  | xsession | String | M | x-sesion-id of UA   * **INVITE**   Originator side: get valule from “From” in SIP-Header  Terminator side: get value from “To” in SIP-Heder   * **200 INVITE, BYE**   Get value from instance |
|  | SDP | String | M | Session description protocol  Get value “SDP” from SIP-Body.  If a value of SIP-Body doesn’t encode, the application is encoding with “Base64” |
|  | Callback-Address | String | M | Get from EC02 configuration named **“P-WRTC-HTTP-Address”** |
|  | Callback-Session | String | M | Get value **“Mobile-Type:Call-ID”** from instance. |
|  | Flag-Direction | Number | M | Indentify type of the direction.  0 - Outbound  1 - Inbound |

#### Example

**url** = "/P-WRTC/1.0.0/SBC/ResourceAllocate/668100100001?"

**Header**

"Host" : "192.168.88.102:9091"

"Content-Type" = "application/json"

**Body**

{

"x-session" : "668100100001",

"SDP": "",

"Callback-Address": "192.168.88.101:7870",

"Callback-Session" : "MO:MZwDhjp9NO",

"Flag-Direction" : "0"

}

### Response

#### Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | | **Type** | **M/O** | **Description / Example** |
| Body | |  |  |  |
|  | resultcode | String | M | The Code that explaining status of each process’ result ; follow by HTTP Protocal  **Example:**  200 – OK  400 – Bad Request  411 –Invalid URL  408 – Request Timeout  500 – Internal Server Error  Etc. |
|  | developermessage | String | O | The words that explaining status of each process’ result  ( \*That can be any word but should be agreeable with the resultcode)  **Example:**  OK  Bad Request  Invalid URL  Etc. |
|  | SDP | String | Om | Session description protocol  In case **Resource Allocate Response** ; Get value “SDP” from Instance and application will modify message as following:  v=0  o=8888888888 978 2342 IN IP4 192.168.0.153  s=Talk  **c=IN IP4 192.168.0.153 -----** Follow session 4.2.9  t=0 0  a=rtcp-xr:rcvr-rtt=all:10000 stat-summary=loss,dup,jitt,TTL voip-metrics  **m=audio 7078 RTP/AVP 96 97 98 0 8 101 99 100** --- Follow session 4.2.9  a=rtpmap:96 opus/48000/2 |

#### Example

**Body**

{ "resultcode" : "200",

"developermessage" : "OK",

"SDP":

""

}

# Resource UnAllocate

### Request

\*\* Format url: "/AppName/version/${SubNode}/${command}/${x-session-id}?"

|  |  |
| --- | --- |
| **Protocol** | HTTP |
| **Method** | POST |
| **url (Request-URI)** | **Example:** = /P-WRTC/1.0.0/SBC/**ResourceUnAllocate**/668100100001? |

#### Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | | **Type** | **M/O** | **Description / Example** |
| Protocol | |  |  | HTTP |
| url | | String | M | url for request message to SBC  **Format url:** "/AppName/version/${SubNode}/${command}/${x-session-id}?"  **SubNode:**   * SBC   **Command:**   * ResourceAllocate * ResourceUnAllocate |
| **Header** | |  |  |  |
| Host | | String | M | Destination of SBC  Get value from EC02 configuration named **“SBC-HTTP-Address”** |
| Content-Type | | String | M | application/json |
| **Body** | |  |  |  |
|  | x-session | String | M | x-sesion-id of UA   * **INVITE**   Originator side: get valule from “From” in SIP-Header  Terminator side: get value from “To” in SIP-Heder   * **200 INVITE, BYE**   Get value from instance |

#### Example

**url** = "/P-WRTC/1.0.0/SBC/ResourceUnAllocate/668100100001?"

**Header**

"Host" : "192.168.88.102:9091"

"Content-Type" : "application/json"

**Body**

{

"x-session" : "668100100001"

}

### Response

#### Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | | **Type** | **M/O** | **Description / Example** |
| Body | |  |  |  |
|  | resultcode | String | M | The Code that explaining status of each process’ result  **Example:**  **Example:**  200 – OK  400 – Bad Request  411 –Invalid URL  408 – Request Timeout  500 – Internal Server Error  Etc. |
|  | developermessage | String | O | The words that explaining status of each process’ result  ( \*That can be any word but should be agreeable with the resultcode)  **Example:**  OK  Bad Request  Invalid URL  Etc. |
|  | SDP | String | Om | Session description protocol  In case **Resource Allocate Response** ; Get value “SDP” from Instance and application will modify message as following:  v=0  o=8888888888 978 2342 IN IP4 192.168.0.153  s=Talk  **c=IN IP4 192.168.0.153 -----** Follow session 4.2.9  t=0 0  a=rtcp-xr:rcvr-rtt=all:10000 stat-summary=loss,dup,jitt,TTL voip-metrics  **m=audio 7078 RTP/AVP 96 97 98 0 8 101 99 100** --- Follow session 4.2.9  a=rtpmap:96 opus/48000/2 |

#### Example

{ "resultcode" : "200",

"developermessage" : "OK"

}

# Terminate Insufficient

\*\* Format url: "/AppName/version/${SubNode}/${command}/${x-session-id}?"

|  |  |
| --- | --- |
| **Protocol** | HTTP |
| **Method** | POST |
| **url (Request-URI)** | **Example:** /SBC/1.0/P-WRTC/**TerminateInsufficeint**/MO:123456… |

#### Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | | **Type** | **M/O** | **Description** | **Example** |
| URL | | String | M | url for request message to P-WRTC  **Format url:** "/AppName/version/${SubNode}/${command}/${callback-Session}?"  **SubNode:**   * P-WRTC   **Command:**   * CCR-I * CCR-U * CCR-T * TerminateUnreachable * TerminateInsufficeint   **x-session-id :**  Get the value from instance which was set from ‘callback-session’  of request message from P-WRTC |  |
| Header | |  |  |  |  |
|  | Set-Cookie |  | O |  |  |
| Body | |  |  |  |  |
|  | x-session | String | O | x-session of UA that want to terminate session |  |

#### Example

**URL = “**/SBC/1.0/P-WRTC/TerminateInsufficeint /MO:MZwDhjp9NO”

**Header**

Set-Cookie

**Body**

**{**

"x-session" : "668100100001"

**}**

# Terminate Unreachable

\*\* Format url: "/AppName/version/${SubNode}/${command}/${x-session-id}?"

|  |  |
| --- | --- |
| **Protocol** | HTTP |
| **Method** | POST |
| **url (Request-URI)** | **Example:** /SBC/1.0/P-WRTC/**TerminateUnreachable**/MO:123456… |

#### Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | | **Type** | **M/O** | **Description** | **Example** |
| URL | | String | M | url for request message to P-WRTC  **Format url:** "/AppName/version/${SubNode}/${command}/${callback-Session}?"  **SubNode:**   * P-WRTC   **Command:**   * CCR-I * CCR-U * CCR-T * TerminateUnreachable * TerminateInsufficeint   **x-session-id :**  Get the value from instance which was set from ‘callback-session’  of request message from P-WRTC |  |
| Header | |  |  |  |  |
|  | Set-Cookie |  | O |  |  |
| Body | |  |  |  |  |
|  | x-session | String | M | x-session of UA that want to terminate session |  |

#### Example

**URL = “**/SBC/1.0/P-WRTC/TerminateInsufficeint /MO:MZwDhjp9NO”

**Header**

Set-Cookie

**Body**

**{**

"x-session" : "668100100001"

**}**

# CCR-I

\*\* Format url: "/AppName/version/${SubNode}/${command}/${x-session-id}?"

|  |  |
| --- | --- |
| **Protocol** | HTTP |
| **Method** | POST |
| **url (Request-URI)** | **Example:** /SBC/1.0/P-WRTC/**CCR-I**/ MO:MZwDhjp9NO |

#### Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | | | | **Type** | **M/O** | **Description / Example** |
| URL | | | | String | M | url for request message to P-WRTC  **Format url:** "/AppName/version/${SubNode}/${command}/${callback-Session}?"  **SubNode:**   * P-WRTC   **Command:**   * CCR-I * CCR-U * CCR-T * TerminateUnreachable * TerminateInsufficeint   **x-session-id :**  Get the value from instance which was set from ‘callback-session’  of request message from P-WRTC |
| Header | | | |  |  |  |
|  | Set-cookie | | |  | O |  |
| Body | | | |  |  |  |
|  | Session-Id | | | Octet  String | M | Identifies a Session-id by getting value from **‘callback-Session’** in instance |
|  | Auth-Application-Id | | | Unsigned32 | M | Indicates the unique ID that is used for re-authentication or re-authorization. The Auth-Application-Id AVP contains the following values:  0: Indicates Diameter common messages  1: Indicates NASREQ  2: Indicates Mobile-IP  The IP address used for the mobile phone to connect to the internet.  3: Indicates Diameter base accounting  0xffffffff: Indicates the relay  4: Indicates the DCCA |
|  | Service-Context-Id | | | Octet  String | M | Indicates the unique ID (extendable) of a DCC service. |
|  | CC-Request-Type | | | Enumerted | M | Indicates the reason for sending a CCR message. This AVP must be contained in the CCR message. The CC-Request-Type AVP contains the following values:  1: INITIAL\_REQUEST Indicates that the initial CCR is used to initiate a credit control session. The session contains the credit control information about initiating a session.  2: UPDATE\_REQUEST Indicates that the update CCR contains the credit control information about the sessions of which credit control is set up. When the re-authorization needs to be initiated, an update CCR needs to be initiated.  3: TERMINATION\_REQUEST Indicates to interrupt a credit control session by terminating a credit request.  4: EVENT\_REQUEST Indicates to use EVENT\_REQUEST when the session status need not be maintained by the DCC server. This request contains all the information about the concerned service. In addition, this request is the unique request of this service. When CC-Request-Type of a CCR message is set to EVENT\_REQUEST, Requested-Action must be contained in the CCR message. |
|  | CC-Request-Number | | | Unsigned32 | M | Indicates the identity of a certain request in a session. As Session-Id is global unique, different requests and answers can be matched through Session-Id and CC-Request-Number. |
|  | Event-Timestamp | | | Octet  String | M | Indicates the time when an event occurs. The value of this AVP is generated by the DCC client. The time is conversed from January 1, 1900, 00:00 UTC, in seconds. Note: UTC: Coordinated Universal Time |
|  | Service-Identifier | | | Unsigned32 | M | Application Id  **Note :** Set value as 0 |
|  | Route-Record | | | DiameterIdentity | M | Set data as same as its defined in Config ; named ‘XXXXXXX’ |
|  | Subscription-Id | | | | O | **Root Element** |
|  |  | Subscription-Id-Type | | Enumerted | O | Indicates the type of a user's terminal ID. The Subscription-Id-Type AVP contains the following values:  0: END\_USER\_E164 Indicates that the terminal identity is of the international E.164 format defined according to the ITU-T E.164 number scheme.  1: END\_USER\_IMSI Indicates that the terminal ID is of the international IMSI format defined according to the ITU-T E.212 number scheme. Note:  IMSI: International Mobile Subscriber Identity  In this interface, only use: 0 (MSISDN) |
|  |  | Subscription-Id-Data | | Octet  String | O | Indicates the number of the charged party by getting value from **‘x-session’** in instance |
|  | Requested-Service-Unit | | | | Om | **Root Element**  The presence of this field means the quotas need to be filled up. The grant of another quota may need to be supervised by OCF.  **Note :** It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  |  | CC-Time | | Unsigned32 | Om | Indicates the length of the requested, granted, or used time in seconds.  **Note :**  It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Used-Service-Unit | | | | Om | **Root Element**  contains the amount of used units measured from the point when the service became active or, if interim interrogations are used during the session, from the point when the previous measurement ended.  **Note :** It must be mandatory when “CC-Request-Type” is “2” and “3” |
|  |  | CC-Time | | Unsigned32 | Om | Indicates the length of the requested, granted, or used time in seconds.  **Note :**  It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Service-Information | | | | X | **Root Element**  Grouped. Allows the transmission of additional MMS service-specific information. |
|  |  | IN-Information | | | O | **Root Element** |
|  |  |  | Charge-Flow-Type | Unsigned32 | O |  |
|  |  |  | SSP-Time | Octet  String | O |  |
|  |  |  | Time-Zone | Unsigned32 | O |  |
|  |  |  | Calling-Party-Address-Nature | Unsigned32 | O |  |
|  |  |  | Called-Party-Address-Nature | Unsigned32 | O |  |
|  |  |  | called-Party-BCDNumber-Nature | Unsigned32 | O |  |
|  |  |  | EventType-BCSM | Unsigned32 | M | Identified for separate between MO and MT  MO=12  MT=2 |

#### Example

**URL = “**/SBC/1.0/P-WRTC/CCR-I/MO:MZwDhjp9NO”

**Header**

Set-Cookie

**Body**

{

"Session-Id": " MO:MZwDhjp9NO ",

"Auth-Application-Id": "4",

"Service-Context-Id": "voice@huawei.com",

"CC-Request-Type": "1",

"CC-Request-Number": "1",

"Event-Timestamp": "3679200292",

"Subscription-Id": {

"Subscription-Id-Type": "0",

"Subscription-Id-Data": "933520261"

},

"Service-Identifier": "0",

"Route-Record": "scp103",

"Requested-Service-Unit": {

"CC-Time": "361"

},

"Used-Service-Unit": {

"CC-Time": "361"

},

"Service-Information": {

"IN-Information": {

"Charge-Flow-Type": "0",

"SSP-Time": "0x3230313630383033313530343532",

"Time-Zone": "32",

"Called-Party-Address-Nature": "0",

"Calling-Party-Address-Nature": "4",

"called-Party-BCDNumber-Nature": "0",

"EventType-BCSM": "2"

}

}

}

# CCA-I

CCA-I command sent from P-WRTC to SBC to answer the quota.

#### Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | | | | **Type** | **M/O** | **Description / Example** |
| Body | | | |  |  |  |
|  | Session-Id | | | Octet  String | M | Identifies a session ID. A session ID uniquely identifies a DCC session process. |
|  | Result-Code | | | Unsigned32 | M | Indicates a specified request is successfully fulfilled or fails. If the host setting the Result-Code AVP is not the host that is designated in the Origin-Host AVP, a failed Result-Code AVP must contain the Error-Reporting-Host AVP. The Diameter protocol provides the following types of error codes. The error type is judged based on the first digit of an error code.  1xxx: informational  2xxx: success  3xxx: protocol errors  4xxx: transient failure  5xxx: permanent failure An error type that cannot be identified, that is, the first digit of an error type is not in the preceding definition is regarded as a permanent failure.  **Example :** XXXX |
|  | Origin-Host | | | DiameterIdentity | O | Contains the identification of the source point of the operation and the realm of the operation originator. Relay agents must not modify this AVP. The value of the Origin-Host AVP is guaranteed to be unique within a single host. |
|  | Origin-Realm | | | DiameterIdentity | O | Indicates the home realm of the device that initiates DCC messages. |
|  | Auth-Application-Id | | | Unsigned32 | O | Indicates the unique ID that is used for re-authentication or re-authorization. The Auth-Application-Id AVP contains the following values:  0: Indicates Diameter common messages  1: Indicates NASREQ  2: Indicates Mobile-IP  The IP address used for the mobile phone to connect to the internet.  3: Indicates Diameter base accounting  0xffffffff: Indicates the relay  4: Indicates the DCCA |
|  | CC-Request-Type | | | Enumerated | M | Indicates the reason for sending a CCR message. This AVP must be contained in the CCR message. The CC-Request-Type AVP contains the following values:  1: INITIAL\_REQUEST Indicates that the initial CCR is used to initiate a credit control session. The session contains the credit control information about initiating a session.  2: UPDATE\_REQUEST Indicates that the update CCR contains the credit control information about the sessions of which credit control is set up. When the re-authorization needs to be initiated, an update CCR needs to be initiated.  3: TERMINATION\_REQUEST Indicates to interrupt a credit control session by terminating a credit request.  4: EVENT\_REQUEST Indicates to use EVENT\_REQUEST when the session status need not be maintained by the DCC server. This request contains all the information about the concerned service. In addition, this request is the unique request of this service. When CC-Request-Type of a CCR message is set to EVENT\_REQUEST, Requested-Action must be contained in the CCR message. |
|  | CC-Request-Number | | | Unsigned32 | M | Indicates the identity of a certain request in a session. As Session-Id is global unique, different requests and answers can be matched through Session-Id and CC-Request-Number. |
|  | Granted-Service-Unit | | | | Om | **Root Element**  The presence of this field means the granted quotas.  **Note :** It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  |  | CC-Time | | Unsigned32 | Om | It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Service-Information | | | | O | **Root Element**  Grouped. Allows the transmission of additional MMS service-specific information. |
|  |  | IN-Information | | | O | **Root Element** |
|  |  |  | Service-Free-Indicator |  | O |  |
|  |  |  | ChargePartyPayType |  | O |  |

#### Example

{

"Session-Id": "8888888888",

"Origin-Realm": "sand.ais.co.th",

"Origin-Host": "ocf\_in2",

"Auth-Application-Id": "4",

"CC-Request-Type": "1",

"Granted-Service-Unit": {

"CC-Time": "361"

},

"CC-Request-Number": "0",

"Result-Code": "2001",

"Service-Information": {

"IN-Information": {

"Service-Free-Indicator": "0",

"ChargePartyPayType": "1"

}

# CCR-U

CCR-U command sent from SBC to P-WRTC to update the qouta.

\*\* Format url: "/AppName/version/${SubNode}/${command}/${x-session-id}?"

|  |  |
| --- | --- |
| **Protocol** | SIP |
| **Method** | REGISTER |
| **url (Request-URI)** | **Example:** /SBC/1.0/P-WRTC/CCR-U/MO:123456… |

#### Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | | | | **Type** | **M/O** | **Description / Example** |
| URL | | | | String | M | url for request message to P-WRTC  **Format url:** "/AppName/version/${SubNode}/${command}/${callback-Session}?"  **SubNode:**   * P-WRTC   **Command:**   * CCR-I * CCR-U * CCR-T * TerminateUnreachable * TerminateInsufficeint   **x-session-id :**  Get the value from instance which was set from ‘callback-session’  of request message from P-WRTC |
| Header | | | |  |  |  |
|  | Set-cookie | | |  |  |  |
| Body | | | |  |  |  |
|  | Session-Id | | | Octet  String | M | Identifies a Session-id by getting value from **‘callback-Session’** in instance |
|  | Auth-Application-Id | | | Unsigned32 | M | Indicates the unique ID that is used for re-authentication or re-authorization. The Auth-Application-Id AVP contains the following values:  0: Indicates Diameter common messages  1: Indicates NASREQ  2: Indicates Mobile-IP  The IP address used for the mobile phone to connect to the internet.  3: Indicates Diameter base accounting  0xffffffff: Indicates the relay  4: Indicates the DCCA |
|  | Service-Context-Id | | | Octet  String | M | Indicates the unique ID (extendable) of a DCC service. |
|  | CC-Request-Type | | | Enumerted | M | Indicates the reason for sending a CCR message. This AVP must be contained in the CCR message. The CC-Request-Type AVP contains the following values:  1: INITIAL\_REQUEST Indicates that the initial CCR is used to initiate a credit control session. The session contains the credit control information about initiating a session.  2: UPDATE\_REQUEST Indicates that the update CCR contains the credit control information about the sessions of which credit control is set up. When the re-authorization needs to be initiated, an update CCR needs to be initiated.  3: TERMINATION\_REQUEST Indicates to interrupt a credit control session by terminating a credit request.  4: EVENT\_REQUEST Indicates to use EVENT\_REQUEST when the session status need not be maintained by the DCC server. This request contains all the information about the concerned service. In addition, this request is the unique request of this service. When CC-Request-Type of a CCR message is set to EVENT\_REQUEST, Requested-Action must be contained in the CCR message. |
|  | CC-Request-Number | | | Unsigned32 | M | Indicates the identity of a certain request in a session. As Session-Id is global unique, different requests and answers can be matched through Session-Id and CC-Request-Number. |
|  | Event-Timestamp | | | Octet  String | M | Indicates the time when an event occurs. The value of this AVP is generated by the DCC client. The time is conversed from January 1, 1900, 00:00 UTC, in seconds. Note: UTC: Coordinated Universal Time |
|  | Service-Identifier | | | Unsigned32 | M | Application Id  **Note :** Set value as 0 |
|  | Route-Record | | | DiameterIdentity | M | Set data as same as its defined in Config ; named ‘XXXXXXX’ |
|  | Subscription-Id | | | | O | **Root Element** |
|  |  | Subscription-Id-Type | | Enumerted | O | Indicates the type of a user's terminal ID. The Subscription-Id-Type AVP contains the following values:  0: END\_USER\_E164 Indicates that the terminal identity is of the international E.164 format defined according to the ITU-T E.164 number scheme.  1: END\_USER\_IMSI Indicates that the terminal ID is of the international IMSI format defined according to the ITU-T E.212 number scheme. Note:  IMSI: International Mobile Subscriber Identity  In this interface, only use: 0 (MSISDN) |
|  |  | Subscription-Id-Data | | Octet  String | O | Indicates the number of the charged party by getting value from **‘x-session’** in instance |
|  | Requested-Service-Unit | | | | Om | **Root Element**  The presence of this field means the quotas need to be filled up. The grant of another quota may need to be supervised by OCS.  **Note :** It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  |  | CC-Time | | Unsigned32 | Om | It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Used-Service-Unit | | | | Om | **Root Element**  **Note :** It must be mandatory when “CC-Request-Type” is “2” and “3” |
|  |  | CC-Time | | Unsigned32 | Om | It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Service-Information | | | | X | **Root Element**  Grouped. Allows the transmission of additional MMS service-specific information. |
|  |  | IN-Information | | | X | **Root Element** |
|  |  |  | Charge-Flow-Type | Unsigned32 | M |  |
|  |  |  | SSP-Time | Octet  String | M |  |
|  |  |  | Time-Zone | Unsigned32 | M |  |
|  |  |  | Calling-Party-Address-Nature | Unsigned32 | M |  |
|  |  |  | Called-Party-Address-Nature | Unsigned32 | M |  |
|  |  |  | called-Party-BCDNumber-Nature | Unsigned32 | M |  |
|  |  |  | EventType-BCSM | Unsigned32 | M | Identify for MO/MT  MO=12  MT=2 |

#### Example

**URL = “**/SBC/1.0/P-WRTC/CCR-U/MO:MZwDhjp9NO”

**Header**

Set-Cookie

**Body**

{

"Session-Id": MO:MZwDhjp9NO ",

"Auth-Application-Id": "4",

"Service-Context-Id": "voice@huawei.com",

"CC-Request-Type": "1",

"CC-Request-Number": "1",

"Event-Timestamp": "3679200292",

"Subscription-Id": {

"Subscription-Id-Type": "0",

"Subscription-Id-Data": "933520261"

},

"Service-Identifier": "0",

"Route-Record": "scp103",

"Requested-Service-Unit": {

"CC-Time": "361"

},

"Used-Service-Unit": {

"CC-Time": "361"

},

"Service-Information": {

"IN-Information": {

"Charge-Flow-Type": "0",

"SSP-Time": "0x3230313630383033313530343532",

"Time-Zone": "32",

"Called-Party-Address-Nature": "0",

"Calling-Party-Address-Nature": "4",

"called-Party-BCDNumber-Nature": "0",

"EventType-BCSM": "2"

}

}

}

# CCA-U

CCA-I command sent from P-WRTC to SBC to answer the quota.

#### Table

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Element** | | | | | **Type** | **M/O** | **Description / Example** |
| Body | | | | |  |  |  |
|  | Session-Id | | | | Octet  String | M | Identifies a session ID. A session ID uniquely identifies a DCC session process. |
|  | Result-Code | | | | Unsigned32 | M | Indicates a specified request is successfully fulfilled or fails. If the host setting the Result-Code AVP is not the host that is designated in the Origin-Host AVP, a failed Result-Code AVP must contain the Error-Reporting-Host AVP. The Diameter protocol provides the following types of error codes. The error type is judged based on the first digit of an error code.  1xxx: informational  2xxx: success  3xxx: protocol errors  4xxx: transient failure  5xxx: permanent failure An error type that cannot be identified, that is, the first digit of an error type is not in the preceding definition is regarded as a permanent failure.  **Example :** 2001 |
|  | Origin-Host | | | | DiameterIdentity | M | Contains the identification of the source point of the operation and the realm of the operation originator. Relay agents must not modify this AVP. The value of the Origin-Host AVP is guaranteed to be unique within a single host. |
|  | Origin-Realm | | | | DiameterIdentity | M | Indicates the home realm of the device that initiates DCC messages. |
|  | Auth-Application-Id | | | | Unsigned32 | M | Indicates the unique ID that is used for re-authentication or re-authorization. The Auth-Application-Id AVP contains the following values:  0: Indicates Diameter common messages  1: Indicates NASREQ  2: Indicates Mobile-IP  The IP address used for the mobile phone to connect to the internet.  3: Indicates Diameter base accounting  0xffffffff: Indicates the relay  4: Indicates the DCCA |
|  | CC-Request-Type | | | | Enumerated | M | Indicates the reason for sending a CCR message. This AVP must be contained in the CCR message. The CC-Request-Type AVP contains the following values:  1: INITIAL\_REQUEST Indicates that the initial CCR is used to initiate a credit control session. The session contains the credit control information about initiating a session.  2: UPDATE\_REQUEST Indicates that the update CCR contains the credit control information about the sessions of which credit control is set up. When the re-authorization needs to be initiated, an update CCR needs to be initiated.  3: TERMINATION\_REQUEST Indicates to interrupt a credit control session by terminating a credit request.  4: EVENT\_REQUEST Indicates to use EVENT\_REQUEST when the session status need not be maintained by the DCC server. This request contains all the information about the concerned service. In addition, this request is the unique request of this service. When CC-Request-Type of a CCR message is set to EVENT\_REQUEST, Requested-Action must be contained in the CCR message. |
|  | CC-Request-Number | | | | Unsigned32 | M | Indicates the identity of a certain request in a session. As Session-Id is global unique, different requests and answers can be matched through Session-Id and CC-Request-Number. |
|  | Granted-Service-Unit | | | | | Om | **Root Element**  The presence of this field means the granted quotas.  **Note :** It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  |  | CC-Time | | | Unsigned32 | Om | It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Service-Information | | | | | M | **Root Element**  Grouped. Allows the transmission of additional MMS service-specific information. |
|  |  | IN-Information | | | | M | **Root Element** |
|  |  |  | Furnished-Charging-Information | |  |  |  |
|  |  |  | Service-Free-Indicator | |  |  |  |
|  |  |  | ChargePartyPayType | |  |  |  |
|  |  |  | Auth-Information (Sub-Root) | |  |  |  |
|  |  |  |  | Auth-UserState |  |  |  |
|  |  |  |  | Auth-ResultCode |  |  |  |
|  |  |  |  | Auth-Action |  |  |  |

#### Example

{

"Session-Id": "0:2613953400:scp103;1470210604;1055;1",

"Origin-Realm": "sand.ais.co.th",

"Origin-Host": "ocf\_in2",

"Auth-Application-Id": "4",

"CC-Request-Type": "2",

"Granted-Service-Unit": {

"CC-Time": "361"

},

"CC-Request-Number": "0",

"Result-Code": "2001",

"Service-Information": {

"IN-Information": {

"Furnished-Charging-Information": "-1",

"Service-Free-Indicator": "0",

"ChargePartyPayType": "1",

"Auth-Information": {

"Auth-UserState": "200000",

"Auth-ResultCode": "2001",

"Auth-Action": "00"

}

}

}

}

# CCR-T

CCR-T command sent from SBC to P-WRTC to terminate the qouta.

\*\* Format url: "/AppName/version/${SubNode}/${command}/${x-session-id}?"

|  |  |
| --- | --- |
| **Protocol** | SIP |
| **Method** | REGISTER |
| **url (Request-URI)** | **Example:** /SBC/1.0/P-WRTC/**CCR-T**/MO:123456… |

#### Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | | | | **Type** | **M/O** | **Description / Example** |
| URL | | | | String | M | url for request message to P-WRTC  **Format url:** "/AppName/version/${SubNode}/${command}/${callback\_Session}?"  **SubNode:**   * P-WRTC   **Command:**   * CCR-I * CCR-U * CCR-T * TerminateUnreachable * TerminateInsufficeint   **x-session-id :**  Get the value from instance which was set from ‘callback-session’  of request message from P-WRTC |
| Header | | | |  |  |  |
|  | Set-cookie | | |  |  |  |
| Body | | | |  |  |  |
|  | Session-Id | | | Octet  String | M | Identifies a Session-id by getting value from **‘callback-Session’** in instance |
|  | Auth-Application-Id | | | Unsigned32 | M | Indicates the unique ID that is used for re-authentication or re-authorization. The Auth-Application-Id AVP contains the following values:  0: Indicates Diameter common messages  1: Indicates NASREQ  2: Indicates Mobile-IP  The IP address used for the mobile phone to connect to the internet.  3: Indicates Diameter base accounting  0xffffffff: Indicates the relay  4: Indicates the DCCA |
|  | Service-Context-Id | | | Octet  String | M | Indicates the unique ID (extendable) of a DCC service. |
|  | CC-Request-Type | | | Enumerted | M | Indicates the reason for sending a CCR message. This AVP must be contained in the CCR message. The CC-Request-Type AVP contains the following values:  1: INITIAL\_REQUEST Indicates that the initial CCR is used to initiate a credit control session. The session contains the credit control information about initiating a session.  2: UPDATE\_REQUEST Indicates that the update CCR contains the credit control information about the sessions of which credit control is set up. When the re-authorization needs to be initiated, an update CCR needs to be initiated.  3: TERMINATION\_REQUEST Indicates to interrupt a credit control session by terminating a credit request.  4: EVENT\_REQUEST Indicates to use EVENT\_REQUEST when the session status need not be maintained by the DCC server. This request contains all the information about the concerned service. In addition, this request is the unique request of this service. When CC-Request-Type of a CCR message is set to EVENT\_REQUEST, Requested-Action must be contained in the CCR message. |
|  | CC-Request-Number | | | Unsigned32 | M | Indicates the identity of a certain request in a session. As Session-Id is global unique, different requests and answers can be matched through Session-Id and CC-Request-Number. |
|  | Event-Timestamp | | | Octet  String | M | Indicates the time when an event occurs. The value of this AVP is generated by the DCC client. The time is conversed from January 1, 1900, 00:00 UTC, in seconds. Note: UTC: Coordinated Universal Time |
|  | Service-Identifier | | | Unsigned32 | M | Application Id  **Note :** Set value as 0 |
|  | Route-Record | | | DiameterIdentity | M | Set data as same as its defined in Config ; named ‘XXXXXXX’ |
|  | Subscription-Id | | | | O | **Root Element** |
|  |  | Subscription-Id-Type | | Enumerted | O | Indicates the type of a user's terminal ID. The Subscription-Id-Type AVP contains the following values:  0: END\_USER\_E164 Indicates that the terminal identity is of the international E.164 format defined according to the ITU-T E.164 number scheme.  1: END\_USER\_IMSI Indicates that the terminal ID is of the international IMSI format defined according to the ITU-T E.212 number scheme. Note:  IMSI: International Mobile Subscriber Identity  In this interface, only use: 0 (MSISDN) |
|  |  | Subscription-Id-Data | | Octet  String | O | Indicates the number of the charged party by getting value from **‘x-session’** in instance |
|  | Requested-Service-Unit | | | | Om | **Root Element**  The presence of this field means the quotas need to be filled up. The grant of another quota may need to be supervised by OCS.  **Note :** It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  |  | CC-Time | | Unsigned32 | Om | It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Used-Service-Unit | | | | Om | **Root Element**  **Note :** It must be mandatory when “CC-Request-Type” is “2” and “3” |
|  |  | CC-Time | | Unsigned32 | Om | It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Service-Information | | | | X | **Root Element**  Grouped. Allows the transmission of additional MMS service-specific information. |
|  |  | IN-Information | | | X | **Root Element** |
|  |  |  | Charge-Flow-Type | Unsigned32 | M |  |
|  |  |  | SSP-Time | Octet  String | M |  |
|  |  |  | Time-Zone | Unsigned32 | M |  |
|  |  |  | Calling-Party-Address-Nature | Unsigned32 | M |  |
|  |  |  | Called-Party-Address-Nature | Unsigned32 | M |  |
|  |  |  | called-Party-BCDNumber-Nature | Unsigned32 | M |  |
|  |  |  | EventType-BCSM | Unsigned32 | M | Identify for MO/MT  MO=12  MT=2 |

#### Example

**URL = “**/SBC/1.0/P-WRTC/CCR-T/MO:MZwDhjp9NO”

**Header**

Set-Cookie

**Body**

{

"Session-Id": " MO:MZwDhjp9NO ",

"Auth-Application-Id": "4",

"Service-Context-Id": "voice@huawei.com",

"CC-Request-Type": "3",

"CC-Request-Number": "1",

"Event-Timestamp": "3679200292",

"Subscription-Id": {

"Subscription-Id-Type": "0",

"Subscription-Id-Data": "933520261"

},

"Service-Identifier": "0",

"Route-Record": "scp103",

"Requested-Service-Unit": {

"CC-Time": "361"

},

"Used-Service-Unit": {

"CC-Time": "361"

},

"Service-Information": {

"IN-Information": {

"Charge-Flow-Type": "0",

"SSP-Time": "0x3230313630383033313530343532",

"Time-Zone": "32",

"Called-Party-Address-Nature": "0",

"Calling-Party-Address-Nature": "4",

"called-Party-BCDNumber-Nature": "0",

"EventType-BCSM": "2"

}

}

}

# CCA-T

CCA-T command sent from P-WRTC to SBC to response the result.

#### Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | | | | **Type** | **M/O** | **Description / Example** |
| Body | | | |  |  |  |
|  | Session-Id | | | Octet  String | M | Identifies a session ID. A session ID uniquely identifies a DCC session process. |
|  | Result-Code | | | Unsigned32 | M | Indicates a specified request is successfully fulfilled or fails. If the host setting the Result-Code AVP is not the host that is designated in the Origin-Host AVP, a failed Result-Code AVP must contain the Error-Reporting-Host AVP. The Diameter protocol provides the following types of error codes. The error type is judged based on the first digit of an error code.  1xxx: informational  2xxx: success  3xxx: protocol errors  4xxx: transient failure  5xxx: permanent failure An error type that cannot be identified, that is, the first digit of an error type is not in the preceding definition is regarded as a permanent failure.  **Example :** 2001 |
|  | Origin-Host | | | DiameterIdentity | O | Contains the identification of the source point of the operation and the realm of the operation originator. Relay agents must not modify this AVP. The value of the Origin-Host AVP is guaranteed to be unique within a single host. |
|  | Origin-Realm | | | DiameterIdentity | O | Indicates the home realm of the device that initiates DCC messages. |
|  | Auth-Application-Id | | | Unsigned32 | M | Indicates the unique ID that is used for re-authentication or re-authorization. The Auth-Application-Id AVP contains the following values:  0: Indicates Diameter common messages  1: Indicates NASREQ  2: Indicates Mobile-IP  The IP address used for the mobile phone to connect to the internet.  3: Indicates Diameter base accounting  0xffffffff: Indicates the relay  4: Indicates the DCCA |
|  | CC-Request-Type | | | Enumerated | M | Indicates the reason for sending a CCR message. This AVP must be contained in the CCR message. The CC-Request-Type AVP contains the following values:  1: INITIAL\_REQUEST Indicates that the initial CCR is used to initiate a credit control session. The session contains the credit control information about initiating a session.  2: UPDATE\_REQUEST Indicates that the update CCR contains the credit control information about the sessions of which credit control is set up. When the re-authorization needs to be initiated, an update CCR needs to be initiated.  3: TERMINATION\_REQUEST Indicates to interrupt a credit control session by terminating a credit request.  4: EVENT\_REQUEST Indicates to use EVENT\_REQUEST when the session status need not be maintained by the DCC server. This request contains all the information about the concerned service. In addition, this request is the unique request of this service. When CC-Request-Type of a CCR message is set to EVENT\_REQUEST, Requested-Action must be contained in the CCR message. |
|  | CC-Request-Number | | | Unsigned32 | M | Indicates the identity of a certain request in a session. As Session-Id is global unique, different requests and answers can be matched through Session-Id and CC-Request-Number. |
|  | Granted-Service-Unit | | | | Om | **Root Element**  The presence of this field means the granted quotas.  **Note :** It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  |  | CC-Time | | Unsigned32 | Om | It must be mandatory when “CC-Request-Type” is “1” and “2” |
|  | Service-Information | | | | M | **Root Element**  Grouped. Allows the transmission of additional MMS service-specific information. |
|  |  | IN-Information | | | O | **Root Element** |
|  |  |  | Service-Free-Indicator |  | O |  |
|  |  |  | ChargePartyPayType |  | O |  |

#### Example

{

"Session-Id": "0:2613953400:scp103;1470210604;1055;1",

"Origin-Realm": "sand.ais.co.th",

"Origin-Host": "ocf\_in2",

"Auth-Application-Id": "4",

"CC-Request-Type": "3",

"Granted-Service-Unit": {

"CC-Time": "361"

},

"CC-Request-Number": "0",

"Result-Code": "2001",

"Service-Information": {

"IN-Information": {

"Service-Free-Indicator": "0",

"ChargePartyPayType": "1"

}

}

}

}

**Refference**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **AVP Code** | **Initial** | | | **Update** | | | **Terminate** | | | **Data Type** |
| **MO** | **MT** | **MF** | **MO** | **MT** | **MF** | **MO** | **MT** | **MT** |
| < Session-Id > | 263 | M | M | M | M | M | M | M | M | M | OctetString |
| { Auth-Application-Id } ตัวเลข Ex. 4 | 258 | M | M | M | M | M | M | M | M | M | Unsigned32 |
| { Service-Context-Id } String Ex. Voice@Triangular | 461 | M | M | M | M | M | M | M | M | M | OctetString |
| { CC-Request-Type } 1 ,2, 3 | 416 | M | M | M | M | M | M | M | M | M | Enumerted |
| { CC-Request-Number } เริ่มจาก 0 ไป 1 2 3 …. นนนับตามครั้งของ CCR | 415 | M | M | M | M | M | M | M | M | M | Unsigned32 |
| [ Event-Timestamp ] Format UTC1900 ส่งมาเป็น long | 55 | M | M | M | M | M | M | M | M | M | OctetString |
| [ Service-Identifier ] Fix เป็น 0 ไว้ก่อน | 439 | M | M | M | M | M | M | M | M | M | Unsigned32 |
| \*[ Route-Record ] Default เป็น SBC / เอามาจาก config | 282 | M | M | M | M | M | M | M | M | M | DiameterIdentity |
| \*[ Subscription-Id ] **--- Root** | 443 | M | M | M | M | M | M | M | M | M |  |
| { Subscription-Id-Type } Default 0 | 450 | M | M | M | M | M | M | M | M | M | Enumerted |
| { Subscription-Id-Data } ค่า x-session | 444 | M | M | M | M | M | M | M | M | M | OctetString |
| [ Requested-Service-Unit ] **I , U** | 437 | M | M | M | M | M | M | M | M | M |  |
| [ CC-Time ] เอามาจาก conf เป็น Quota เพื่อเอาเทียบต่อครั้งที่รับ CCA ,,, T ไม่ใช้ I U ใช้ | 420 | O | O | O | O | O | O | - | - | - | Unsigned32 |
| \*[ Used-Service-Unit ] **U , T** | 446 | O | O | O | O | O | O | - | - | - |  |
| [ CC-Time ] I ไม่สนใจ แต่ U กับ T สนใจ | 420 | - | - | - | O | O | O | O | O | O | Unsigned32 |
| [ Service-Information ] | 873 | - | - | - | O | O | O | O | O | O |  |
| [ IN-Information ] | 20300 | O | O | O | O | O | O | O | O | O |  |
| [ Charge-Flow-Type ] Default เป็น 0 ก่อน สนใจแค่ขา I | 20339 | O | O | O | - | - | - | - | - | - | Unsigned32 |
| SSP-Time \*\* ส่งค่าเดียวกับ EventTimeStamp | 20386 | M | M | M | - | - | - | - | - | - | OctetString |
| [Time-Zone] \*\* ใส่เป็น 32 ไปก่อน | 20324 | M | M | M | M | M | M | M | M | M | Unsigned32 |
| [ Calling-Party-Address ] x-session | 20336 | O | O | O | - | - | - | - | - | - | OctetString |
| [ Calling-Party-Address-Nature ] 4 | 20949 | M | O | O | - | - | - | - | - | - | Unsigned32 |
| [ Called-Party-Address-Nature ] 4 | 20952 | O | M | M | - | - | - | - | - | - | Unsigned32 |
| [called-Party-BCDNumber-Nature] 4 | 20950 | M | - | O | - | - | - | - | - | - | Unsigned32 |
| [ EventType-BCSM ] ถ้า MO เป็น 2 , MT เป็น 1 | 20315 | O | O | O | - | - | - | - | - | - | Unsigned32 |