**BFCP Support**

Binary Floor Control Protocol (BFCP), defined in RFC 4582, is a protocol for controlling the access to the media resources in a conference.

Cisco Unified Border Element (SP Edition) was earlier known as Integrated Session Border Controller. It is referred to in this document as the session border controller (SBC).

For a complete description of the commands used in this chapter, refer to the *Cisco Unified Border Element (SP Edition) Command Reference: Unified Model* at:


For information about all the Cisco IOS commands, use the Command Lookup Tool at http://tools.cisco.com/Support/CLILookup or a Cisco IOS master commands list.

**Feature History for BFCP Support**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
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<tr>
<td>Cisco IOS XE Release 3.3S</td>
<td>This feature was introduced on the Cisco ASR 1000 Series Routers.</td>
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- Configuration Example of BFCP Support, page 32-9

**Prerequisite for BFCP Support**

Following is the prerequisite pertaining to the BFCP Support feature:

- The SBC must pass through the \( b=CT \) line and the \( a=rtcp-fb:* nack pli \) RTCP feedback information included in the Session Description Protocol (SDP).
Restrictions for BFCP Support

Following are the restrictions pertaining to the BFCP Support feature:

- The SBC treats a generic media stream the same way it treats other media streams. Therefore, a call is released only if all the media streams are reported as being inactive. The Media Packet Forwarder (MPF) media timer is processed in the same way as the other voice or video streams pertaining to the BFCP stream.

- A BFCP media stream and a generic media stream do not have a bandwidth specified. Therefore, it can be policed only by the MPF, and not the Call Admission Control (CAC) total bandwidth limits.

- The SBC does not support the generic TCP streams or BFCP over TCP. Therefore, a request to add a TCP stream to the generic media stream configuration gets rejected.

- H.323 calls or H.323-SIP interworking calls are not supported.

Information About BFCP Support

The BFCP Support feature supports BFCP over UDP in the SBC by configuring BFCP as a recognized generic media stream that can be forwarded using the best-effort traffic class.

Generic media streams are media streams in which the media (m)-line definition uses * instead of a codec list, for example, m=application port UDP/BFCP *. By default, the SBC cuts these m-lines out of the SDP offers and replies by setting the port to zero. These media lines carry no bandwidth information and therefore, cannot be policed against CAC limits, denial of service, or media theft attacks of the SBC.

The BFCP Support feature introduces the best-effort traffic class that allows policing of these media lines in the media forwarder.

The SBC can be configured to accept specific generic media streams. After this, the accepted generic media streams are added to the best-effort traffic class. MPF implementation supports the best-effort traffic class by policing the actual usage of the aggregate of these streams.

Best-Effort Traffic Class

Prior to Cisco IOS XE Release 3.3S, the media streams had their bandwidth specified for audio and video streams, or were not subjected to any policing, such as T120. From Cisco IOS XE Release 3.3S, the SBC is configured to accept arbitrary type and number of generic media streams. Some of the BFCP streams can now have low bandwidth protocol messages. The best-effort traffic class simplifies packet policing because it allows a media forwarder to handle such streams cumulatively. The best-effort traffic class rate limit is 1Mbps cumulatively.
Deploying BFCP Support

Figure 32-1 shows a scenario where the SBC can be deployed for the BFCP Support feature. In this scenario, the SBC is located in the Service Provider network, allows inter enterprise calls between different VPNs, and protects the core network.

Figure 32-1 BFCP Deployment Scenario

Configuring BFCP Support

This section describes how to configure the BFCP Support feature on the SBC.

SUMMARY STEPS

1. configure terminal
2. sbc service-name
3. **sbe**
4. **stream-list stream-list-name**
5. **description description**
6. **generic-stream media-type {application | message} transport udp protocol protocol-name**
7. **exit**
8. **cac-policy-set policy-set-id**
9. **cac-table table-name**
10. **table-type {policy-set | limit {list of limit tables}}**
11. **entry entry-id**
12. **action [next-table goto-table-name | cac-complete]**
13. **generic-stream caller generic-stream-list**
14. **generic-stream callee generic-stream-list**
15. **match-value key**
16. **exit**
17. **exit**
18. **complete**
19. **end**
20. **show sbc service-name sbe stream-list**
21. **show sbc service-name sbe cac-policy-set id table name entry entry**

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> configure terminal</td>
<td>Enables the global configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router# configure terminal</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong> sbc sbc-name</td>
<td>Enters the SBC service mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router(config)# sbc mysbc</td>
<td>Use the sbc-name argument to define the name of the service.</td>
</tr>
<tr>
<td><strong>Step 3</strong> sbe</td>
<td>Enters the SBE entity mode within an SBC service.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router(config-sbc)# sbe</td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong> stream-list stream-list-name</td>
<td>Configures a stream list and enters the stream list configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Router(config-sbc-sbe)# stream-list my_stream</td>
<td>• stream-list-name—The name of the stream list. The stream list name can be upto 30 characters.</td>
</tr>
<tr>
<td>Step 5</td>
<td><strong>description</strong> description</td>
</tr>
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<td>--------</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>
| Example: | Router(config-sbc-sbe-stream-list)# description "This is my first stream list"
| Purpose: | Configures descriptive text for the stream list.

| Step 6 | **generic-stream media-type** (application | message) **transport** udp **protocol** protocol-name |
|--------|-----------------------------------------------|
| Example: | Router(config-sbc-sbe-stream-list)#
generic-stream media-type application transport udp protocol BFCP
| Purpose: | Configures the media type for a generic stream.
  * application—Specifies application as media type for the generic stream.
  * message—Specifies message as media type for the generic stream.
  * transport—Configures the transport protocol for the generic stream.
  * udp—Specifies the UDP protocol for the generic stream.
  * protocol—Specifies the protocol name for the generic stream.
  * protocol-name—The protocol name for the generic stream. The protocol name is case sensitive.

<table>
<thead>
<tr>
<th>Step 7</th>
<th><strong>exit</strong></th>
</tr>
</thead>
</table>
| Example: | Router(config-sbc-sbe-stream-list)# exit
| Purpose: | Exits from the stream list configuration mode and enters the SBE configuration mode.

<table>
<thead>
<tr>
<th>Step 8</th>
<th><strong>cac-policy-set</strong> policy-set-id</th>
</tr>
</thead>
</table>
| Example: | Router(config-sbc-sbe)# cac-policy-set 2
| Purpose: | Enters the CAC policy set configuration mode within an SBE entity, creating a new policy set, if necessary.
  * policy-set-id—The call policy set number that can range from 1 to 2147483647.

<table>
<thead>
<tr>
<th>Step 9</th>
<th><strong>cac-table</strong> table-name</th>
</tr>
</thead>
</table>
| Example: | Router(config-sbc-sbe-cacpolicy)# cac-table 2
| Purpose: | Enters the admission control table configuration mode (creating one, if necessary) within the context of an SBE policy set.

| Step 10 | **table-type** (policy-set | limit (list of limit tables)) |
|---------|-----------------------------|
| Example: | Router(config-sbc-sbe-cacpolicy-cactable)#
table-type src-adjacency
| Purpose: | Configures a limit to the table types that are to be matched by the **match-value** command. For the multiple SBC media bypass feature, use the following table type:
  * src-adjacency—Compares the name of the source adjacency.

<table>
<thead>
<tr>
<th>Step 11</th>
<th><strong>entry</strong> entry-id</th>
</tr>
</thead>
</table>
| Example: | Router(config-sbc-sbe-cacpolicy-cactable)#
entry 1
| Purpose: | Enters the CAC table entry mode to create or modify an entry in an admission control table.
### Command or Action | Purpose
--- | ---
**Step 12** | **action** `[next-table goto-table-name | cac-complete]`
**Example:**
Router(config-sbc-sbe-cacpolicy-cactable-entry)  
# action cac-complete
- Configures the action to be performed after the entry, in an admission control table. Possible actions are:
  - Identifies the next CAC table to be processed using the `next-table` keyword and the `goto-table-name` argument.
  - Stops the processing for the scope using the `cac-complete` keyword.

**Step 13** | **generic-stream caller** `generic-stream-list`
**Example:**
Router(config-sbc-sbe-cacpolicy-cactable-entry)  
# generic-stream caller my-stream
- Configures the generic media stream list settings for a caller.
  - `generic-stream-list`—The name of the generic stream list. This generic stream list should be defined during the configuration of the stream list.

**Step 14** | **generic-stream callee** `generic-stream-list`
**Example:**
Router(config-sbc-sbe-cacpolicy-cactable-entry)  
# generic-stream callee my-stream
- Configures the generic media stream list settings for a callee.
  - `generic-stream-list`—The name of the generic stream list. This generic stream list should be defined during the configuration of the stream list.

**Step 15** | **match-value** `key`
**Example:**
Router(config-sbc-sbe-cacpolicy-cactable-entry)  
# match-value SIP-adj-test
- Configures the match value of an entry in a CAC limit table.
  - `key`—The keyword used to match events. The format of the key is determined by the table type limit.

**Step 16** | **exit**
**Example:**
Router(config-sbc-sbe-cacpolicy-cactable-entry)  
# exit
- Exits from the CAC table entry configuration mode and enters the CAC table mode.

**Step 17** | **exit**
**Example:**
Router(config-sbc-sbe-cacpolicy-cactable)# exit
- Exits from the CAC table configuration mode and enters the CAC policy set configuration mode.

**Step 18** | **complete**
**Example:**
Router(config-sbc-sbe-cacpolicy-cactable)# complete
- Completes the CAC policy set after you have committed the complete set.

**Step 19** | **end**
**Example:**
Router(config)# end
- Exits from the CAC policy set configuration mode and enters the Privileged EXEC mode.
### Configuring BFCP Support

#### Step 20

**Command or Action**

```plaintext
show sbc sbc-name sbe stream-list
```

**Purpose**

Displays the stream lists that are present on the SBE.

**Example:**

```plaintext
Router# show sbc mysbc sbe stream-list
my-stream
```

#### Step 21

**Command or Action**

```plaintext
show sbc service-name sbe cac-policy-set id table name entry entry
```

**Purpose**

Displays detailed information about a specific entry in a CAC policy table.

**Example:**

```plaintext
Router# show sbc mysbc sbe cac-policy-set 1 table MyTable entry 1
```

---

The following example shows the output of the `show sbc sbe stream-list` command:

```plaintext
Router# show sbc mysbc sbe stream-list
SBC Service "mysbc"

Stream list: my-stream
  Description: This is my first stream list
  Media-type: application Transport: udp protocol: Streambased
  Media-type: message Transport: udp protocol: BFCP
```

The following example shows the output of the `show sbc sbe cac-policy-set table entry` command:

```plaintext
Router# show sbc mysbc sbe cac-policy-set 25 table 2 entry 1
SBC Service "Mysbc"
CAC Averaging period 1: 60 sec
CAC Averaging period 2: 0 sec
CAC Policy Set 25
Global policy set: No
Description:
  First CAC table:
    First CAC scope: global
Table name: 2
  Description:
    Table type: limit src-adjacency
    Total call setup failures (due to non-media limits): 0
Entry 1
  Match value:
    Match prefix length: 0
  Action: CAC complete
  Number of call setup failures (due to non-media limits): 0
  No. of registrations rejected (due to registration limits): 0
    Max calls per scope: Unlimited
    No. of events rejected due to Max Call Limit: 0
    Max reg. per scope: Unlimited
    No. of events rejected due to Max Reg limit: 0
    Max channels per scope: Unlimited
    Max updates per scope: Unlimited
    Max bandwidth per scope: Unlimited
```
### Configuring BFCP Support

<table>
<thead>
<tr>
<th></th>
<th>Averaging-period 1</th>
<th>Averaging-period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max call rate per scope:</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
<tr>
<td>No. of events rejected due to Max call rate:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max reg. rate per scope:</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
<tr>
<td>No. of events rejected due to Max reg rate:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max in-call message rate:</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
<tr>
<td>No. of events rejected due to Max in-call rate:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max out-call message rate:</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
<tr>
<td>No. of events rejected due to Max Out call rate:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Timestamp when the rejection counts were last reset:</td>
<td>2011/01/03 22:29:40</td>
<td></td>
</tr>
</tbody>
</table>

- Early media: Allowed
- Early media direction: Both
- Callee Bandwidth-Field: None
- Media bypass: Allowed
- Renegotiate Strategy: Delta
- SRTTP Transport: Trusted-Only (by default)
- Caller hold setting: Standard
- Callee hold setting: Standard
- Caller limited-privacy-service: Never hide identity
- Callee limited-privacy-service: Never hide identity
- Caller privacy-service: Not set
- Callee privacy-service: Not set
- Caller edit-privacy-request: Not set
- Callee edit-privacy-request: Not set
- Caller edit-privacy-request sip strip: Not set
- Callee edit-privacy-request sip strip: Not set
- Caller edit-privacy-request sip insert: Not set
- Callee edit-privacy-request sip insert: Not set
- Caller voice QoS profile: Default
- Callee voice QoS profile: Default
- Caller video QoS profile: Default
- Callee video QoS profile: Default
- Caller sig QoS profile: Default
- Callee sig QoS profile: Default
- Caller inbound SDP policy: None
- Callee inbound SDP policy: None
- Caller outbound SDP policy: None
- Callee outbound SDP policy: None
- SDP Media Profile: None
- Caller Generic Stream: my-stream
- Callee Generic Stream: my-stream
- Caller media disabled: None
- Callee media disabled: None
- Caller unsignaled secure media: Not Allowed
- Callee unsignaled secure media: Not Allowed
- Caller response downgrade support: No
- Callee response downgrade support: No
- Caller retry rtp support: No
- Callee retry rtp support: No
- Resend sdp answer in 200ok: No
- Caller tel-event payload type: Default
- Callee tel-event payload type: Default
- Media flag: None
- Restrict codecs to list: Default
- Restrict caller codecs to list: Default
- Restrict callee codecs to list: Default
- Codec preference list: Default
- Caller Codec profile: None
- Callee Codec profile: None
- Caller media caps list: None
- Callee media caps list: None
- TCS extra codec list: None
Configuration Example of BFCP Support

Following is a configuration example of the BFCP Support feature on the SBC:

sbc sbc
sbe
stream-list my-stream
description voip stream list
generic-stream media-type application transport udp protocol BFCP
generic-stream media-type application transport udp protocol test
exit
cac-policy-set 2
cac-table 2
table-type limit src-adjacency
entry 1
  action cac-complete
generic-stream caller my-stream
generic-stream callee my-stream
  match-value SIP-adj-test
exit
exit
complete