



CHAPTER 3

SBC Configuration

This chapter provides information on configuring the data border element (DBE) and signaling border element (SBE) for the SBC unified and distributed models.



Note

For ACE SBC Release 3.0.00, in the distributed model, the SBC can only function as an DBE; it cannot function as an SBE.



Note

Before upgrading from Release ACE SBC 3.0.1 or ACE SBC Release 3.0.2 to ACE SBC Release 3.1.0, you must unconfigure billing. After the upgrade, you can reconfigure billing.



Caution

Performing bulk running configurations from disk or using cut and paste or tftp: is not recommended because it may cause CPU spikes that can trigger congestion leading to rejected calls.

Configuring Unified Model

This section contains information on configuring the unified model. It contains the following topics:

- [Configuring SBE in the Unified Model, page 3-1](#)
- [Configuring DBE in the Unified Model, page 3-5](#)

Configuring SBE in the Unified Model

This section describes how to configure a SBE on a Cisco 7600 series router:

Prerequisites

- In the unified mode, you must configure the SBE before the DBE.
- Ensure that CEF is enabled (the default) because the SBC DBE deployment on the Cisco 7600 router is supported on the Cisco IOS Cisco Express Forwarding (CEF) switch path.
- When running SBC with 500 or more active calls, configure the huge buffer size to 65535 bytes with the **buffer huge size 65535** command to ensure the buffer is large enough for H.248 audit responses.

- Configure the FT group before configuring DBE.
- You must configure the ACE to perform an SBC DNS lookup.

SUMMARY STEPS

1. **configure**
2. **sbc** *sbc-name*
3. **sbe**
4. **adjacency sip** *adjacency-name*
5. **signaling-address ipv4** *ipv4_IP_address*
6. **signaling-port** *port_num*
7. **remote-address ipv4** *ip-address ip-mask*
8. **signaling-peer** *peer_name*
9. **signaling-peer-port** *port_num*
10. **attach**
11. **call-policy-set** *policy-set-id*
12. **first-call-routing-table** *table-name*
13. **rtg-src-adjacency-table** *table-id*
14. **entry** *entry-id*
15. **action**
16. **dst-adjacency** *target-adjacency*
17. **match-adjacency** *key*
18. **complete**
19. **active-call-policy-set** *policy-set-id*
20. **activate**
21. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure Example: host1/Admin# configure terminal	Enters global configuration mode.
Step 2	sbc <i>sbc-name</i> Example: host1/Admin(config)# sbc mySbc	Creates the SBC service on the SBC and enters into SBC configuration mode.
Step 3	sbe Example: host1/Admin(config-sbc)# sbe	Enters the mode of the signaling border element (SBE) function of the SBC.

	Command or Action	Purpose
Step 4	<p>adjacency sip <i>adjacency-name</i></p> <p>Example: host1/Admin(config-sbc-sbe)# adjacency sip sipGW</p>	<p>Enters the mode of an SBE SIP adjacency.</p> <p>Use the <i>adjacency-name</i> argument to define the name of the service.</p>
Step 5	<p>signaling-address ipv4 <i>ipv4_IP_address</i></p> <p>Example: host1/Admin(config-sbc-sbe-adj-sip)# signaling-address ipv4 88.88.141.11</p>	<p>Specifies the local IPv4 signaling address of the SIP adjacency.</p>
Step 6	<p>signaling-port <i>port_num</i></p> <p>Example: host1/Admin(config-sbc-sbe-adj-sip)# signaling-port 5060</p>	<p>Specifies the local signaling port of the SIP adjacency.</p>
Step 7	<p>remote-address ipv4 <i>ip-address ip-mask</i></p> <p>Example: host1/Admin(config-sbc-sbe-adj-sip)# remote-address 200.200.200.0 255.255.255.0</p>	<p>Restricts the set of remote signaling peers contacted over the adjacency to those with the given IP address prefix.</p>
Step 8	<p>signaling-peer <i>peer_address</i></p> <p>Example: host1/Admin(config-sbc-sbe-adj-sip)# signaling-peer 200.200.200.98</p>	<p>Specifies the remote signaling peer for the SIP adjacency to use.</p>
Step 9	<p>signaling-peer-port <i>port_num</i></p> <p>Example: host1/Admin(config-sbc-sbe-adj-sip)# signaling-peer-port 5060</p>	<p>Specifies the remote signaling-peer port for the SIP adjacency to use.</p>
Step 10	<p>attach</p> <p>Example: host1/Admin(config-sbc-sbe-adj-sip)# attach</p>	<p>Attaches the adjacency.</p>
Step 11	<p>call-policy-set <i>policy-set-id</i></p> <p>Example: host1/Admin(config-sbc-sbe)# call-policy-set 1 host1/Admin(config-sbc-sbe-callpolicy)#</p>	<p>Enters the mode of routing policy set configuration within an SBE entity, creating a new policy set, if necessary.</p>
Step 12	<p>first-call-routing-table <i>table-name</i></p> <p>Example: host1/Admin(config-sbc-sbe-callpolicy)# first-call-routing-table ROUTE-ON-DEST-NUM</p>	<p>Configures the name of the first policy table to process when performing the routing stage of policy for new-call events.</p>

	Command or Action	Purpose
Step 13	<pre>rtg-src-adjacency-table table-id</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe-callpolicy)# rtg-src-adjacency-table MySrcAdjTable</pre></p>	Enters the configuration mode of a routing table (creating one if necessary) within the context of an SBE policy set whose entries match the source adjacency.
Step 14	<pre>entry entry-id</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe-callpolicy- rtgtable)# entry 1</pre></p>	Enters the mode for configuring an entry in a routing table, creating the entry if necessary.
Step 15	<pre>action [next-table goto-table-name complete reject]</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe-callpolicy- rtgtable-entry)# action complete</pre></p>	<p>Configures the action to take if this routing entry is chosen. Possible actions are:</p> <ul style="list-style-type: none"> • Set the name of the next routing table to process if the event matches this entry. This is done using the next-table keyword and the <i>goto-table-name</i> argument. • Complete the action using the complete keyword. • Reject the indicated action using the reject keyword.
Step 16	<pre>dst-adjacency target-adjacency</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe-callpolicy-rtgtable- entry)# dst-adjacency SIP-AS540-PSTN-GW2</pre></p>	Configures the destination adjacency of an entry in a routing table.
Step 17	<pre>match-adjacency target-adjacency</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe-rtgpolicy-rtgtable-e ntry)# match-adjacency ADJ1</pre></p>	Configures the match value of an entry in a number analysis or routing table whose entries match against the source adjacency.
Step 18	<pre>complete</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe-cacpolicy- cactable-entry)# complete</pre></p>	Completes the CAC policy set when you have committed the full set.
Step 19	<pre>active-call-policy-set policy-set-id</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe)# active-call-policy-set 1</pre></p>	Sets the active routing policy set within an SBE entity.
Step 20	<pre>activate</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe)# activate</pre></p>	Initiates the DBE service of the SBC.
Step 21	<pre>end</pre> <p>Example: <pre>host1/Admin(config-sbc-sbe)# end</pre></p>	Exits SBC-DBE configuration mode and returns to Exec mode.

Configuring DBE in the Unified Model

This section describes how to configure a DBE on a Cisco 7600 series router:

Prerequisites

- Ensure that CEF is enabled (the default) because the SBC DBE deployment on the Cisco 7600 router is supported on the Cisco IOS Cisco Express Forwarding (CEF) switch path.
- When running SBC with 500 or more active calls, configure the huge buffer size to 65535 bytes with the **buffer huge size 65535** command to ensure the buffer is large enough for H.248 audit responses.
- Configure the FT group before configuring DBE.



Note Even for a standalone configuration, you must configure the FT group before configuring DBE.

SUMMARY STEPS

1. **configure**
2. **sbc** *sbc-name*
3. **dbe**
4. **media-address ipv4** *A.B.C.D*
5. **exit**
6. **activate**
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure Example: host1/Admin# configure terminal	Enters global configuration mode.
Step 2	sbc <i>sbc-name</i> Example: host1/Admin(config)# sbc mySbc	Creates the SBC service on the SBC and enters into SBC configuration mode.
Step 3	dbe Example: host1/Admin(config-sbc)# dbe	Creates the DBE service on an SBC and enters into the SBC-DBE configuration mode.
Step 4	media-address ipv4 { <i>A.B.C.D</i> } Example: host1/Admin(config-sbc-dbe)# media-address ipv4 1.1.1.1	Adds the IPv4 address which can be used by the DBE as a local media address. This address is the SBC virtual interface address.

	Command or Action	Purpose
Step 5	exit Example: host1/Admin(config-sbc-dbe-vdbe)# exit	Returns to the previous submode.
Step 6	activate Example: host1/Admin(config-sbc-dbe)# activate	Initiates the DBE service of the SBC.
Step 7	end Example: host1/Admin(config-sbc-dbe)# end	Exits SBC-DBE configuration mode and returns to Exec mode.

Configuring SBC Unified Model (UM): Example

The following is an example of an SBC UM configuration:

```
host1/Admin# show run sbc
Generating configuration....
sbc test
  sbe
    adjacency sip Access
      signaling-address ipv4 88.103.29.100
      signaling-port 5060
      remote-address ipv4 200.200.200.0 255.255.255.0
      signaling-peer 200.200.200.118
      signaling-peer-port 5060
      attach

    adjacency sip Core
      signaling-address ipv4 88.103.33.100
      signaling-port 5060
      remote-address ipv4 200.200.200.0 255.255.255.0
      signaling-peer 200.200.200.118
      signaling-peer-port 5060
      attach

  call-policy-set 1
    first-call-routing-table start-table
    rtg-src-adjacency-table start-table
      entry 1
        action complete
        dst-adjacency Core
        match-adjacency Access
      entry 2
        action complete
        dst-adjacency Access
        match-adjacency Core
    complete

  active-call-policy-set 1

  activate

dbe
```

```
media-address ipv4 88.103.29.100
media-timeout 30
deact-mode normal
activate
```

Configuring Distributed Model

In the distributed model, the SBE and the DBE entities reside on different network elements. Logically, each of the SBE entities controls multiple DBE elements, and each DBE could be controlled by multiple SBE entities. The SBE interacts with the DBE entities using a session controller interface (SCI). The SCI interface supports the H.248 protocol.

**Note**

For ACE SBC Release 2.0.00, the SBC supports only DBEs in the distributed model; SBEs are not supported.

Configuring DBE

This section describes how to configure a DBE on a Cisco 7600 series router:

Prerequisites

- Ensure that CEF is enabled (the default) because the SBC DBE deployment on the Cisco 7600 router is supported on the Cisco IOS Cisco Express Forwarding (CEF) switch path.
- When running SBC with 500 or more active calls, configure the huge buffer size to 65535 bytes with the **buffer huge size 65535** command to ensure the buffer is large enough for H.248 audit responses.
- Configure the FT group before configuring DBE.

**Note**



Even for a standalone configuration, you must configure the FT group before configuring DBE.

SUMMARY STEPS

1. **configure**
2. **sbc** *sbc-name*
3. **dbe**
4. **vdbe** *global*
5. **control-address h248 ipv4** *A.B.C.D*
6. **controller h248** *controller-index*
7. **remote-address ipv4**
8. **transport udp** or **transport tcp**
9. **controller h248** *controller-index* **remote-port**
10. **attach-controllers**
11. **exit**

12. `media-address ipv4 A.B.C.D`
13. `exit`
14. `activate`
15. `end`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>configure</code> Example: <code>host1/Admin# configure terminal</code>	Enters global configuration mode.
Step 2	<code>sbc sbc-name</code> Example: <code>host1/Admin(config)# sbc mySbc</code>	Creates the SBC service on the SBC and enters into SBC configuration mode.
Step 3	<code>dbe</code> Example: <code>host1/Admin(config-sbc)# dbe</code>	Creates the DBE service on an SBC and enters into the SBC-DBE configuration mode.
Step 4	<code>vdbe global</code> Example: <code>host1/Admin(config-sbc-dbe)# vdbe</code>	Enters into vDBE configuration submode.  Note In the initial release only one vDBE (the global vDBE) is supported. The vdbe name is not required. If specified, it must be “global.”
Step 5	<code>control-address h248 ipv4 A.B.C.D</code> Example: <code>host1/Admin(config-sbc-dbe-vdbe)# control-address h248 ipv4 210.229.108.254</code>	Configures a DBE to use a specific IPv4 H.248 control address.  Note The control address must match the alias IP of the interface VLAN.
Step 6	<code>controller h248 controller-index</code> Example: <code>host1/Admin(config-sbc-dbe-vdbe)# controller h248 1</code>	Configures the H.248 controller for the DBE and enters into Controller H.248 configuration mode. The controller-index identifies the H.248 controller for the DBE.
Step 7	<code>remote-address ipv4 remote-address</code> Example: <code>host1/Admin(config-sbc-dbe-vdbe)# remote-address ipv4 1.1.1.1</code>	Configures the IPv4 remote address of the H.248 controller for the DBE.
Step 8	<code>transport udp</code> or <code>transport tcp</code> Example: <code>host1/Admin(config-sbc-dbe-vdbe)# transport tcp</code>	Configures a DBE to use either TCP or UDP for H.248 control signaling with the specified H.248 controller.

	Command or Action	Purpose
Step 9	controller h248 controller-index remote-port Example: host1/Admin(config-sbc-dbe-vdbe)# controller h248 1 remote-port	Defines the port to connect to for an H.248 controller.
Step 10	attach-controllers Example: host1/Admin(config-sbc-dbe-vdbe)# attach-controllers	Attaches the DBE to an H.248 controller.
Step 11	exit Example: host1/Admin(config-sbc-dbe-vdbe)# exit	Returns to the previous submode.
Step 12	media-address ipv4 {A.B.C.D} Example: host1/Admin(config-sbc-dbe)# media-address ipv4 1.1.1.1	Adds the IPv4 address which can be used by the DBE as a local media address. This address is the SBC virtual interface address.
Step 13	exit Example: host1/Admin(config-sbc-dbe-vdbe)# exit	Returns to the previous submode.
Step 14	activate Example: host1/Admin(config-sbc-dbe)# activate	Initiates the DBE service of the SBC.
Step 15	end Example: host1/Admin(config-sbc-dbe)# end	Exits SBC-DBE configuration mode and returns to Exec mode.

Examples

The DBE does not always attach or detach from its controller immediately. To display information on whether the controller is attached or detached, use the **show sbc dbe controllers** command.

The following example uses the **show sbc dbe controllers** command to display status info showing that the vDBE with a location ID of 1 on an SBC called mySbc is attached to its controller:

```
host1/Admin# show services sbc mySbc dbe controllers
```

```
SBC Service "mySbc"
vDBE in DBE location 1
```

```
Media gateway controller in use:
H.248 controller address
210.229.108.252:2944
Status:                Attached
```

	Sent	Received	Failed	Retried
Requests	1	6	0	0
Replies	6	1	0	0

Configured controllers:

H.248 controller 1:

Remote address: 210.229.108.252:2944 (using default port)

Transport: UDP

Troubleshooting Tips

Bad Getbuffer Log Message

Problem:

You run more than 500 active calls on your SBC DBE deployment and the following log message appears:

```
*Feb 11 11:35:52.909: %SYS-2-GETBUF: Bad getbuffer, bytes= 34506
-Process= "SBC main process", ipl= 0, pid= 183
-Traceback= 70EDFC 747354 9942D0 AFC6E4 B01AC4 29637B0 2960FCC 24C7F04 24C7918 24C7AD0
24D97AC 24D8790 2987C70
*Feb 11 11:35:52.909: %SBC-2-MSG-0303-0046: (sckrecv2.c 991)
Socket write error.
Sockets error code = 255
Socket ID = 0

*Feb 11 11:35:52.909: %SBC-2-MSG-0303-0025: (sckis.c 112)
General sockets layer error detected.
Sockets error code = 255

*Feb 11 11:35:52.909: %SBC-2-MSG-2E01-0014: (gctpfsm.c 730)
An association with a peer has become disconnected.
Peer's address = 200.10.255.252
Peer's port = 2944
Reason code = 0X04
```

Workaround:

Change your huge buffer size to 65535 bytes. This is the recommended huge buffer size for deployment of more than 500 active calls due to the need for increased buffer size for H.248 audit responses.

Distributed Model Configuration Examples

The following samples that show configuration steps and tips to use for a Cisco 7600 deployment of the DBE service of an SBC.

- [Configuring the SBC DBE, page 3-11](#)
- [Configuring IP and Media IP: Example, page 3-11](#)
- [Configuring Multiple IP and Multiple Media IP: Example, page 3-12](#)

Configuring the SBC DBE

The following is a sample configuration representing the ordered tasks used to configure an SBC DBE deployed on the Cisco 7600 router:

```
interface vlan 87
  ip address 87.87.13.101 255.255.255.0
  alias 87.87.13.108 255.255.255.0
  peer ip address 87.87.13.200 255.255.255.0
  no shutdown
ft peer 1
  heartbeat interval 300
  heartbeat count 10
  ft-interface vlan 21
  query-interface vlan 87
ft group 1
  peer 1
  priority 1
  associate-context Admin
  inservice

sbc infral
  dbe
    vdbe
      global
        dtmf-duration 200
        congestion-cleared 60
        congestion-threshold 80
        unexpected-source-alerting
        local-port 2944
        control-address h248 ipv4 87.87.13.108
        controller h248 1
          remote-address ipv4 99.99.103.100
          transport udp
        attach-controllers
      media-address ipv4 87.87.13.108
      media-timeout 30
      overload-time-threshold 100
      deact-mode normal
      activate
```

Configuring IP and Media IP: Example

The following example shows the running configuration where the primary IP address and primary media IP addresses have been configured:

```
sbc mySbc dbe
  vdbe global
    use-any-local-port
    control-address h248 ipv4 210.229.108.254
    controller h248 1
      remote-address ipv4 210.229.108.252
    attach-controllers
  activate
  location-id 1
  media-address ipv4 1.1.1.1 <== primary local media IP address added using primary IP addr
```

Configuring Multiple IP and Multiple Media IP: Example

The following example shows the running configuration where a secondary IP address and secondary media IP address are configured after the primary IP address and primary media address have been configured:

```
sbc mySbc dbe
vdbe global
  use-any-local-port
  control-address h248 ipv4 210.229.108.254
  controller h248 1
    remote-address ipv4 210.229.108.252
  attach-controllers
activate
location-id 1
media-address ipv4 1.1.1.1
media-address ipv4 25.25.25.25 <=== secondary media IP addr added using secondary IP addr
```