



## Implementing SBC Billing

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The SBC billing component includes the following core features:

- Compatibility with existing billing systems—To be able to fit the SBC billing system easily into a provider’s existing billing architecture is an important functional requirement. This requirement entails the use of mechanisms to obtain billing information in a similar fashion to those of the existing mechanisms.
- Integration with next-generation technologies and solutions—Equally important as compatibility with existing systems is the requirement to employ next-generation billing technologies, so that service information from SBC, softswitches, voicemail and unified messaging applications, and so on can be collated and billed in a distributed environment.
- High availability and fault tolerance.
- Flexible architecture.

The function of the billing component can broadly be divided into two modes:

- Standalone, record-based call logging.
- Third-party integrated, distributed RADIUS-based call and event logging.



### Note

For a complete description of commands used in this chapter, refer to the *Cisco IOS XR Session Border Controller Command Reference*. To locate documentation for other commands that appear in this chapter, use the command reference master index, or search online.

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### Feature History for Implementing SBC Billing

Release	Modification
Release 3.3.0	This feature was introduced on the Cisco XR 12000 Series Router.
Release 3.3.1	The <b>cache</b> command was modified to take a cache name as the argument rather than the cache path.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.

## Contents

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## Prerequisites for Implementing Billing

The following prerequisites are required to implement SBC billing:

- You must be in a user group associated with a task group that includes the proper task IDs for SBC commands being used. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.
- You must install and activate the package installation envelope (PIE) for the SBC software.  
For detailed information about PIE installation, refer to the *Upgrading and Managing Cisco IOS XR Software* module in the *Cisco IOS XR Getting Started Guide*.
- To implement billing on the signaling border element (SBE) you must obtain a unique network element ID for the SBE from your network administrator. In addition, you must perform the following tasks depending on what form of billing you require.
  - To implement hard disk record-based call logging, you must first obtain and configure the file hardware and file handling systems (FTP and backup, for instance).
  - To implement integrated RADIUS-based call logging, you must first obtain and configure the file cache hardware and set up the RADIUS network infrastructure.

## Information About Implementing Billing

The following sections describe SBC billing topologies. It is critical to understand all SBC billing features and capabilities before performing billing configurations for the SBC.

- [Standalone Billing Systems](#)
- [Integrated Billing Systems](#)

The “[Additional Information about Billing Support](#)” module provides additional non-configuration-specific details on many aspects of billing, such as:

- [Event Message Transmission](#)
- [Call Detail Records](#)
- [Administration and Configuration](#)
- [Logging and Alarms](#)
- [Fault Tolerance](#)
- [Security](#)

## Standalone Billing Systems

Standalone billing and billing caching is supported in both a unified model SBC, or a standalone SBE. A standalone billing system comprises the following modes of operation and events:

- When a call starts, SBC begins recording billable events for that call.
- At the end of the call, SBC stops recording, and collates the events into a single call detail record (CDR).
- The CDR is stored on disk. Available disk space constrains the number of CDRs that can be stored. For example: 24 hours of records could take up approximately 10 GB of disk space.

In the event that disk space becomes unavailable, an alarm log in the form of a Simple Network Management Protocol (SNMP) trap is generated, requesting that an administrator free up disk space by removing CDRs. No further CDRs are logged until more disk space is made available, but the system continues to accept calls.

A set of thresholds are configured on SBC, which defines a progression of alarms triggered by increasing file size; this enables an administrator to free up disk space before it runs out.

- The format of the CDRs is in extensible markup language (XML) format, which can be parsed into the format required by the target billing platform.

The CDR format most often used by softswitch vendors to generate CDRs is the Bellcore AMA Format, described in *Billing Automatic Message Accounting Format (BAF) Generic Requirements* (BAF-GR-1100-CORE). Unfortunately for the next-generation of Voice over IP (VoIP) applications, such as SBC, the BAF format is too telephony specific, and does not contain sufficient provision for IP-centric logging information. (For example, it does not allow for logging of Session Description Protocol (SDP) or RTCP statistics). In addition, the format is not extensible, so it is not possible to define extensions to contain these fields.

An XML format is a desirable alternative, because XML is a flexible, standardized methodology and is commonly used where data must be translated between different platforms (such as between an SBC and a billing server). See the [“End-to-End SBC Configuration Example on a Cisco XR 12000 Series Router”](#) module for more information.

## Integrated Billing Systems

Integrated billing is achieved through the PacketCable Event Messages architecture (see the *PacketCable 1.5 Event Messages Specification*; PKT-SP-EM1.5-I01-050128) as exemplified in [Figure 15](#) where the SBC is integrated into this architecture. As shown, the billing server and softswitch both support PacketCable Event Messages.

ISP-A shows SBC operating in a unified model where the billing system is being deployed as a distributed billing system consisting of three billing servers. The SBC can be configured to send to these servers in a range of ways, such as to all three simultaneously, or to use one primary and two backups.

In the unified model, the system operates as follows:

- The SBC produces event messages (EMs). These event messages are billable or other interesting events, such as call start, call end, and media-type changes.
- The SBC (and other elements of the system), which produces EMs, sends them in real time (or batched up for network efficiency) using the RADIUS protocol to the billing server.
- The billing server collates EMs into call detail records.

- In the event that a billing server(s) is unavailable, the EM is marked as being unsent and is stored for up to 24 hours. (The EMs are stored on the Cisco XR 12000 Series Router hard disk depending on the free space available.)
- An alarm log is generated, and the EM is resent to the RADIUS servers by manual CLI commands when the RADIUS servers are back online.

ISP-B shows SBC operating in a distributed model where the billing system is being deployed using a single billing server and a softswitch.

In the distributed model, the system operates as follows:

- Only the SBE communicates with the billing server. That is, no event messages are generated by the DBE. All media-specific information (for example: gate request information and media statistics) is sent by the DBE to the SBE which then generates event messages as required to send to the billing servers.
- The billing server collates billing information both from the SBE and the softswitch to provide the ISP with a single billing point. The softswitch only interface to the billing service is one of the ways service providers could use to get billing information. It is outside the scope of SBC billing.
- In the event that a billing server(s) is unavailable, the EM is marked as being unsent and is stored for up to 24 hours. An alarm log is generated, and the EM will be resent by the billing component when the RADIUS server is back online.

**Note**

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Standalone billing and billing caching is supported in both a unified model SBC, or a standalone SBE.

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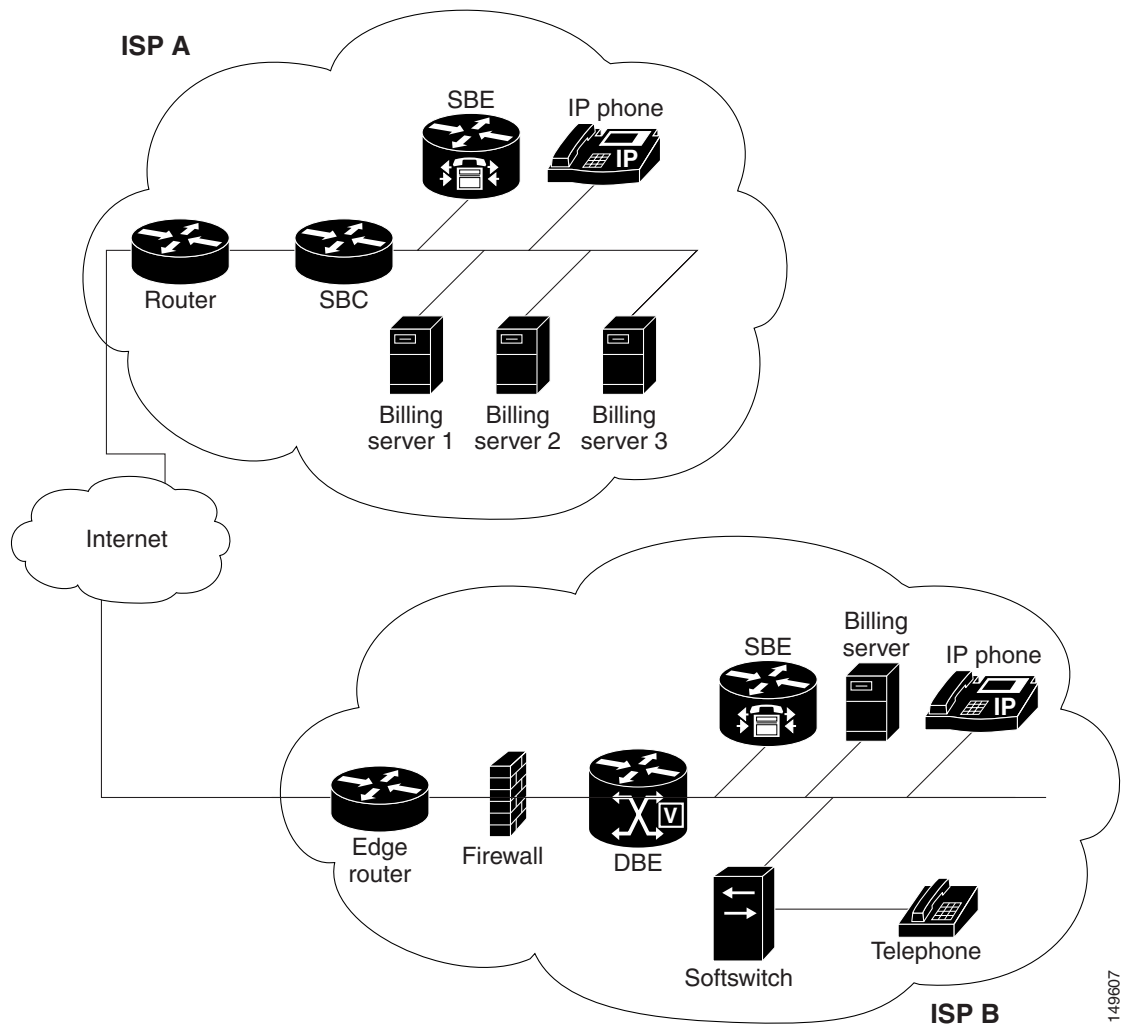
**Note**

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The *PacketCable 1.5 Event Messages Specification* discusses sending the identifying information (the BCID and FEID) on the outgoing INVITE and responding SDP so that correlation can be done between the two sets of billing data. SBC does not support this mechanism for intra-domain or inter-domain transmission. The billing server must perform the correlation using an alternative method (for example, using the telephone numbers dialed and the time of the call).

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Figure 15 Integrated Billing Deployment



## How to Implement Billing

The SBE can perform local or remote billing. The key objects to be configured for billing are the long duration checks and the physical location of the cache. To implement either local or remote billing, follow the procedures in the following sections:

- [Configuring Local Billing](#)
- [Configuring Remote Billing](#)

### Configuring Local Billing

This task defines how to configure local billing configurations.

**SUMMARY STEPS**

1. **configure**
2. **sbc** *service-name*
3. **sbe**
4. **billing local**
5. **local address**
6. **ldr-check** *HH:MM*
7. **cache** *name*
8. **minor-alarm-threshold** *value*
9. **major-alarm-threshold** *value*
10. **critical-alarm-threshold** *value*
11. **show service sbc** *sbc name sbe billing local*
12. **commit**

**DETAILED STEPS**

	<b>Command or Action</b>	<b>Purpose</b>
<b>Step 1</b>	<b>configure</b>  <b>Example:</b> RP/0/0/CPU0:router# configure	Enables global configuration mode.
<b>Step 2</b>	<b>sbc</b> <i>service-name</i>  <b>Example:</b> RP/0/0/CPU0:router(config)# sbc mysbc	Enters the mode of an SBC service.  Use the <i>service-name</i> argument to define the name of the service.
<b>Step 3</b>	<b>sbe</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc)# sbe	Enters the mode of an SBE entity within an SBC service.
<b>Step 4</b>	<b>billing local</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe)# billing local	Enters the local billing mode used to configure billing policy on the SBE.
<b>Step 5</b>	<b>local-address ipv4</b> <i>ipv4_IP_address</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-lclbill)# local-address	Configures the local IPv4 address for local billing.

	Command or Action	Purpose
Step 6	<p><b>ldr-check</b> <i>HH:MM</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-lclbill)#  ldr-check 22:30</p>	<p>Configures the time of day (local time) to run the long duration record check for reporting over 24 hours.</p> <p>The range of the <i>HH:MM</i> variable is 00:00 to 23:59.</p>
Step 7	<p><b>cache</b> <i>name</i></p> <p><b>Example:</b>  RP/0/RP0/CPU0:router(config-sbc-sbe-lclbill)#  cache mybillingrecords</p>	<p>Configures the directory where the billing information is stored when local billing is used.</p>
Step 8	<p><b>minor-alarm-threshold</b> <i>value</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-lclbill)#  minor-alarm-threshold 50</p>	<p>Configures the threshold (in MB) at which a minor alarm is generated if the CDR file reaches that size.</p>
Step 9	<p><b>major-alarm-threshold</b> <i>value</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-lclbill)#  major-alarm-threshold 500</p>	<p>Configures the threshold (in MB) at which a major alarm is generated if the CDR file reaches that size.</p>
Step 10	<p><b>critical-alarm-threshold</b> <i>value</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-lclbill)#  major-alarm-threshold 1000</p>	<p>Configures the threshold (in MB) at which a critical alarm is generated if the CDR file reaches that size.</p>
Step 11	<p><b>show service sbc</b> <i>sbc name sbe billing local</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-lclbill)#  show service sbc mysbc sbe billing local</p>	<p>Displays the current configuration parameters.</p>
Step 12	<p><b>commit</b></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-lclbill)#  commit</p>	<p>Saves configuration changes. Use the <b>commit</b> command to save the configuration changes to the running configuration file and remain within the configuration session.</p>

## Configuring Remote Billing

This task defines how to configure remote billing configurations.

### SUMMARY STEPS

1. **configure**
2. **sbc** *service-name*
3. **sbe**
4. **control address aaa ipv4** *IP\_address*

5. **network-id** *id*
6. **billing remote**
7. **ldr-check** *HH:MM*
8. **cache** *name*
9. **local-address ipv4** *path*
10. **minor-alarm-threshold** *threshold*
11. **major-alarm-threshold** *threshold*
12. **critical-alarm-threshold** *threshold*
13. **commit**
14. **exit**
15. **radius accounting** *SET-name*
16. **server** *server-name*
17. **address ipv4** *ipv4\_ip\_address*
18. **priority** *pri*
19. **key** *key*
20. **exit**
21. **server** *server-name*
22. **address ipv4** *ipv4\_ip\_address*
23. **priority** *pri*
24. **key** *key*
25. **exit**
26. **activate**
27. **exit**
28. **radius accounting** *SET-name*
29. **server** *server-name*
30. **address ipv4** *ipv4\_ip\_address*
31. **priority** *pri*
32. **key** *key*
33. **exit**
34. **server** *server-name*
35. **address ipv4** *ipv4\_ip\_address*
36. **priority** *pri*
37. **key** *key*
38. **exit**
39. **activate**
40. **exit**
41. **show**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>configure</b>  <b>Example:</b> RP/0/0/CPU0:router# configure	Enables global configuration mode.
Step 2	<b>sbc service-name</b>  <b>Example:</b> RP/0/0/CPU0:router(config)# sbc mysbc	Enters the mode of an SBC service.  Use the <i>service-name</i> argument to define the name of the service.
Step 3	<b>sbe</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc)# sbe	Enters the mode of an SBE entity within an SBC service.
Step 4	<b>control address aaa ipv4 IP_address</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe)# control address aaa ipv4 192.168.113.2	Configure an SBE to use a given IPv4 AAA control address when contacting an authentication or billing server. This address is a unique address within the SVI.
Step 5	<b>network-id id</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe)# network-id 5678	Configures the network ID. The range of the values for the <i>id</i> variable before hexadecimal conversion is 0 to 99999. The network ID is an identifier for the SBE. It can be picked arbitrarily.
Step 6	<b>billing remote</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe)# billing remote	Enters the remote billing mode used to configure billing policy on the SBE.
Step 7	<b>ldr-check HH:MM</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)# ldr-check 22:30	Configures the time of day (local time) to run the long duration record check for reporting over 24 hours.  The range of the <i>HH:MM</i> variable is 00:00 to 23:59.
Step 8	<b>cache name</b>  <b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)# cache mybillingrecords	Configures the directory where the billing information is saved when remote billing is used.
Step 9	<b>local-address ipv4 ipv4_IP_address</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)# local-address ipv4 192.168.113.2	Configures the local IPv4 address. This IP address should be one of the SVI subnets not used for signaling or media, and will be used by the SBC to communicate with a RADIUS server(s).

	Command or Action	Purpose
Step 10	<p><b>minor-alarm-threshold</b> <i>threshold</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)#  minor-alarm-threshold 50</p>	Configures the threshold (in MB) at which a minor alarm event message is generated.
Step 11	<p><b>major-alarm-threshold</b> <i>threshold</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)#  major-alarm-threshold 500</p>	Configures the threshold (in MB) at which a major alarm event message is generated.
Step 12	<p><b>critical-alarm-threshold</b> <i>threshold</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)#  critical-alarm-threshold 1000</p>	Configures the threshold (in MB) at which a critical alarm event message is generated.
Step 13	<p><b>commit</b></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)#  commit</p>	Saves configuration changes. Use the <b>commit</b> command to save the configuration changes to the running configuration file and remain within the configuration session.
Step 14	<p><b>exit</b></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)#  exit</p>	Exits the <b>rmtbill</b> mode to the <b>sbe</b> mode.
Step 15	<p><b>radius accounting</b> <i>SET-name</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe)# radius  accounting set1</p>	Enters the mode for configuring a RADIUS client for accounting purposes.
Step 16	<p><b>server</b> <i>server-name</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-acc)# server  Cisco-AR1-PC</p>	Enters the mode for configuring an accounting server.
Step 17	<p><b>address ipv4</b> <i>ipv4_ip_address</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)#  address ipv4 200.200.200.152</p>	Configures the address of an accounting server.
Step 18	<p><b>priority</b> <i>pri</i></p> <p><b>Example:</b>  RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)#  priority 2</p>	Configures the priority of the accounting server. The <i>pri</i> argument must be in the range of 1 to 10 (highest to lowest).

	Command or Action	Purpose
Step 19	<p><b>key</b> <i>key</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# key cisco</p>	Configures the RADIUS authentication key or shared secret of the accounting servers.
Step 20	<p><b>exit</b></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# exit</p>	Exits the <b>server</b> mode to the <b>acc</b> mode.
Step 21	<p><b>server</b> <i>server-name</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc)# server Cisco-AR2-SUN</p>	Enters the mode for configuring an accounting server.
Step 22	<p><b>address ipv4</b> <i>ipv4_ip_address</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# address ipv4 200.200.200.153</p>	Configures the address of an accounting server.
Step 23	<p><b>priority</b> <i>pri</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# priority 2</p>	Configures the priority of the accounting server. The <i>pri</i> argument must be in the range of 1 to 10 (highest to lowest).
Step 24	<p><b>key</b> <i>key</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# key cisco</p>	Configures the RADIUS authentication key or shared secret of the accounting servers.
Step 25	<p><b>exit</b></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# exit</p>	Exits the <b>server</b> mode to the <b>acc</b> mode.
Step 26	<p><b>activate</b></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc)# activate</p>	Initiates the SBC service.
Step 27	<p><b>exit</b></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc)# exit</p>	Exits the <b>acc</b> mode to the <b>sbe</b> mode.

	Command or Action	Purpose
Step 28	<b>radius accounting</b> <i>SET-name</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe)# radius set2	Enters the mode for configuring a RADIUS client for accounting purposes.
Step 29	<b>server</b> <i>server-name</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc)# server CompanyB-iPhoneEx1	Enters the mode for configuring an accounting server.
Step 30	<b>address ipv4</b> <i>ipv4_ip_address</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# address ipv4 200.200.200.154	Configures the address of an accounting server.
Step 31	<b>priority</b> <i>pri</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# priority 1	Configures the priority of the accounting server. The <i>pri</i> argument must be in the range of 1 to 10 (highest to lowest).
Step 32	<b>key</b> <i>key</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# key CompanyBip	Configures the RADIUS authentication key or shared secret of the accounting servers.
Step 33	<b>exit</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# exit	Exits the <b>server</b> mode to the <b>acc</b> mode.
Step 34	<b>server</b> <i>server-name</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc)# server CompanyB-RKS2	Enters the mode for configuring an accounting server.
Step 35	<b>address ipv4</b> <i>ipv4_ip_address</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# address ipv4 200.200.200.182	Configures the address of an accounting server.
Step 36	<b>priority</b> <i>pri</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# priority 2	Configures the priority of the accounting server. The <i>pri</i> argument must be in the range of 1 to 10 (highest to lowest).

	Command or Action	Purpose
Step 37	<b>key</b> <i>key</i>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# key CompanyBip	Configures the RADIUS authentication key or shared secret of the accounting servers.
Step 38	<b>exit</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc-ser)# exit	Exits the <b>server</b> mode to the <b>acc</b> mode.
Step 39	<b>activate</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-acc)# activate	Initiates the SBC service.
Step 40	<b>exit</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe-rmtbill)# exit	Exits the <b>rmtbill</b> mode to the <b>sbe</b> mode.
Step 41	<b>show</b>  <b>Example:</b> RP/0/0/CPU0:router(config-sbc-sbe)# show	Displays the current configuration status.

## Configuration Examples of Implementing Billing

This section provides the following configuration examples:

- [Configuring Local Billing: Example](#)
- [Configuring Remote Billing: Example](#)

### Configuring Local Billing: Example

The following example shows how to configure local billing:

```
configure
sbc mysbc
sbe
billing local
ldr-check 22:30
cache my_billing_record
minor-alarm-threshold 50
major-alarm-threshold 500
major-alarm-threshold 1000
commit
```

## Configuring Remote Billing: Example

The following example shows how to configure remote billing:

```

sbc a
sbe
control address aaa ipv4 192.168.113.2
network-id 5678
billing remote
ldr-check 10:55
cache cache my_billing_records
local-address ipv4 192.168.113.2
minor-alarm-threshold 1
major-alarm-threshold 2
critical-alarm-threshold 3
commit
exit
radius accounting SET1
server Cisco-AR1-PC
address ipv4 200.200.200.152
priority 3
key cisco
exit
server Cisco-AR2-SUN
address ipv4 200.200.200.153
priority 2
key cisco
exit
activate
exit
radius accounting SET2
server CompanyC-iPhonEX1
address ipv4 200.200.200.154
priority 1
key CompanyCip
exit
server CompanyB-RKS2
address ipv4 200.200.200.182
priority 2
key CompanyB
exit
activate
exit

```

## Additional References

The following sections provide references related to implementing SBC billing.

## Related Documents

Related Topic	Document Title
Cisco IOS XR master command reference	Cisco IOS XR Master Commands List
Cisco IOS XR SBC interface configuration commands	<i>Cisco IOS XR Session Border Controller Command Reference</i>

Related Topic	Document Title
Initial system bootup and configuration information for a router using the Cisco IOS XR Software	<i>Cisco IOS XR Getting Started Guide</i>
Cisco IOS XR command modes	<i>Cisco IOS XR Command Mode Reference</i>

## Standards

Standards	Title
PKT-SP-EM1.5-I01-050128	PacketCable 1.5 Event Messages Specification
BAF-GR-1100-CORE	Billing Automatic Message Accounting Format (BAF) Generic Requirements

## MIBs

MIBs	MIBs Link
—	To locate and download MIBs using Cisco IOS XR software, use the Cisco MIB Locator found at the following URL and choose a platform under the Cisco Access Products menu: <a href="http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml">http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml</a>

## RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

## Technical Assistance

Description	Link
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## Related Command Summary

This section provides an alphabetical list of the commands related to billing configuration on the Cisco XR 12000 Series Router. For more information about the commands, see the *Cisco IOS XR Session Border Controller Command Reference*.

Command	Purpose
<b>billing</b> {local   remote}	Enters the mode used to configure billing policy on the SBE.
<b>cache</b> <i>name</i>	Configures the name of the directory where the billing information cache is stored.
<b>control address aaa ipv4</b> <i>IP_address</i>	Configure an SBE to use a given IPv4 AAA control address when contacting a billing server. This address is a unique address within the SVI.
<b>critical-alarm-threshold</b> <i>value</i>	Configures the threshold (in MB) at which a critical alarm event message is generated.
<b>ldr-check</b> <i>HH:MM</i>	Configures the time of day (local time) to run the long duration record check for reporting over 24 hours.
<b>local-address ipv4</b> <i>path</i>	Configures the local IPv4 address.
<b>major-alarm-threshold</b> <i>value</i>	Configures the threshold (in MB) at which a major alarm event message is generated.
<b>minor-alarm-threshold</b> <i>value</i>	Configures the threshold (in MB) at which a minor alarm event message is generated.
<b>network-id</b> <i>id</i>	Configures the network ID. The range of the values for the <i>id</i> variable before hexadecimal conversion is 0 to 99999.