

Managing Session Border Controllers (SBCs)

This chapter identifies and describes the properties for Session Border Controllers (SBCs) that appear in the Vision client logical inventory. It also describes commands you can run to manage SBCs.

Session Border Controllers (SBCs) control and manage real-time multimedia traffic flows between IP network borders, handling signaling, and media. SBCs perform native IP interconnection functions required for real-time communications such as admission control, firewall traversal, accounting, signaling interworking, and quality-of-service (QoS) management. This includes:

- · Protocol and media interworking
- · Session routing
- · Hosted Network Address Translation (NAT) and firewall traversal
- Security and AAA
- · Intra- and inter-VPN interconnections and optimization
- Media transcoding with an external media server

The Prime Network platform provides fault management, configuration, and performance monitoring for SBC services. Prime Network SBC commands allow you to configure SBC components.

An SBC consists of combined DBE and SBE functionality:

- Data Border Element (DBE)—Responsible for media-related functions.
- Signaling Border Element (SBE)—Responsible for call signaling-related functions.

In addition, the SBC can operate in the following deployment models:

- Distributed Model (DM)—Contains only the SBE or DBE, resulting in a distributed SBC.
- Unified Model (UM)—Contains both the SBE and DBE, thereby implementing the SBE and DBE as a single device.



The existing Cisco SBC platforms support only DBE.

The following topics describe the SBC properties that are displayed in the Vision client logical inventory. If you cannot perform an operation that is described in these topics, you may not have sufficient permissions; see Permissions for Managing SBCs, page B-20.

- Viewing SBC Properties in Logical Inventory, page 24-2
- Viewing SBC DBE Properties, page 24-3
- Viewing SBC SBE Properties, page 24-4
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• Configuring SBC Components, page 24-13

Viewing SBC Properties in Logical Inventory

To view SBC properties in the Vision client logical inventory, right-click the element configured for SBC, then choose **Inventory > Logical Inventory > Session Border Controller**.

The SBC properties are displayed as shown in Figure 24-1.

Figure 24-1 SBC Properties in Logical Inventory

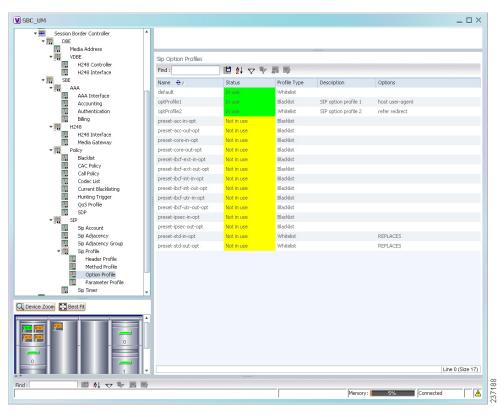


Table 24-1 describes the general SBC properties displayed in logical inventory.

Table 24-1 SBC Properties

Field	Description
Process	Process name, such as Session Border Controller.
Process Status	Status of the process, such as Running.
Application Version	SBC version number.
Mode	Mode in which the SBC is operating:
	• Unified
	Distributed DBE
SBC Service Name	Name of the service.

Viewing SBC DBE Properties

The DBE controls media packet access to the network, provides differentiated services and QoS for different media streams, and prevents service theft.

To view SBC DBE properties, choose Logical Inventory > Session Border Controller > DBE.

Table 24-2 describes the DBE properties that appear in logical inventory.

Table 24-2 SBC DBE Properties

Field	Description
Process	Process name, such as DBE.
Process Status	Status of the process, such as Running.
Name	Name assigned to the DBE.
Туре	Type of DBE, either DBE or virtual DBE (vDBE).
DBE Location Id	Unique identifier configured on each vDBE within a UM DBE.

Viewing Media Address Properties

A DBE uses a pool of sequential IPv4 media addresses as local media addresses.

To view SBC media address properties, choose **Logical Inventory > Session Border Controller > DBE > Media Address**.

Table 24-3 describes the SBC media address properties that are displayed in logical inventory.

Table 24-3 Media Address Properties

Field	Description
Address Range	IP addresses defined for the pool.
Port Range Lower	Lower end of the port range for the interface. If no range is specified, all possible Voice over IP (VoIP) port numbers are valid.
Port Range Upper	Upper end of the port range for the interface.
VRF Name	VRF that the interface is assigned to.
Service Class	Class of service (CoS) for each port range, such as fax, signaling, voice, or any.

Viewing VDBE H.248 Properties

To view VDBE H.248 properties, choose **Logical Inventory > Session Border Controller > DBE > VDBE**.

Table 24-4 describes the VDBE H.248 properties that are displayed in logical inventory.

Table 24-4 VDBE H.248 Properties

Branch	Description
H248 Controller	H.248 controller used by the DBE.
	The Media Gateway Configuration (MGC) table displays the following information:
	• Index—The number of the H.248 controller. The profile is used to interoperate with the SBE.
	Remote IP—The remote IP address for the H.248 controller.
	Remote Port—The remote port for the H.248 controller.
	Transport—The transport for communications with the remote device.
H248 Interface	The SBC H248 Control Interface table displays the following information:
	• IP Address:
	 In DM mode, the local IP address of the DBE used to connect to the SBE.
	 In UM mode, the local IP address used to connect to the media gateway.
	• Port—The port for the H.248 controller interface.
	Transport—The transport the H.248 controller interface uses.
	Association—The relationship between the SBE and the media gateway.

Viewing SBC SBE Properties

The SBE controls the access of VoIP signaling messages to the network core and manipulates the contents of these messages. It does this by acting as a SIP B2BUA or H.323 gateway.

To view SBC SBE properties, choose Logical Inventory > Session Border Controller > SBE.

Table 24-5 describes the information displayed in logical inventory for an SBE.

Table 24-5 SBC SBE Properties

Field	Description
Process	Name of the process, such as SBE.
Process Status	Status of the process, such as Running or Idle.
Name	Name assigned to this SBE.
Call Redirect Limit	Maximum number of times a call is redirected before the call is declared failed. The range is 0 to 100 with a default of 2.
On Hold Timeout	Amount of time, in milliseconds, that the SBE waits after receiving a media timeout notification from the DBE for an on-hold call before tearing down the call.

Viewing AAA Properties

For devices that support local and remote billing, the SBC can send billing records to a AAA server using the RADIUS protocol.

To view AAA properties, choose Logical Inventory > Session Border Controller > SBE > AAA.

Table 24-6 describes the AAA properties that appear in logical inventory for the SBC SBE.

Table 24-6 AAA Properties

Branch	Description
AAA Interface	The SBE AAA Interface table displays the following information:
	AAA Address—The local AAA interface address.
	• Network ID—A unique identifier for the SBE.
Accounting	The Accounting Radius Client table displays the following information:
	Name—The name of the accounting client.
	• Client Type—The type of client, either Accounting or Authentication.
Authentication	The Authentication Radius Client table displays the following information:
	• Name—The name of the authentication client.
	• Client Type—The type of client, either Accounting or Authentication.
Billing	The SBE Billing table displays the following information related to billing:
	• LDR Check Time—The time of day (local time) to run the long duration record check.
	• Local Billing Address—The local IP address for SBE billing. This IP address can be different from the local AAA IP address and is the IP address written in the bill records.
	• Admin Status—The configuration status, available with the running-config command.
	• Operational Status—The running status, available from the CLI. This entry indicates whether or not the billing interface is up. The status is derived from the interworking of the SBC and the AAA server.

Viewing H.248 Properties

The H.248 interface is used for signaling between an SBE and a DBE in distributed mode and between an SBE and a transcoding media gateway. The SBE or SBC acts as an H.248 MGC, and the transcoding device acts as an H.248 media gateway. The connection between the MGC and the media gateway is an H.248 link.

To view H.248 properties, choose Logical Inventory > Session Border Controller > H248.

Table 24-7 describes the H.248 properties that appear in logical inventory for the SBC SBE.

Table 24-7 H.248 Properties

Branch	Description
H248 Interface	The SBC H248 Control Interface table displays the following information:
	• IP Address:
	 In DM mode, the IP address used to connect the DBE and the MGC.
	 In UM mode, the IP address used to connect the SBC and the media gateway.
	Port—The port for the H.248 controller interface.
	Transport—The transport the H.248 controller interface uses.
	Association—The relationship between the SBE and the media gateway.
Media Gateway	The Media Gateway table displays the following information:
	IP Address—The IP address of the media gateway.
	Codec List—A comma-separated list of the codecs supported.

Viewing Policy Properties

An SBC policy is a set of rules that define how the SBC treats different kinds of VoIP events. An SBC policy allows control of the VoIP signaling and media that pass through the SBC at an application level.

A *policy set* is a group of policies that can be active on the SBC at any one time. If a policy set is active, the SBC uses the rules defined within it to apply policy to events. Multiple policies can be set on a single SBC.

To view policy properties, choose **Logical Inventory > Session Border Controller > Policy**.

Table 24-8 describes the policy properties that appear in logical inventory for the SBC SBE.

Table 24-8 Policy Properties

Branch	Description
Blacklist	The Blacklists table contains the following information:
	Name—The blacklist name.
	• Type—The type of source that this blacklist applies to, such as critical or normal.
CAC Policy	A Call Admission Control (CAC) policy is used to define admission control.
	The SBE CAC Policy Set table contains the following information:
	 Policy Set Number—An identifying number the SBE has assigned to the policy set.
	• First Table—A CAC policy table.
	• Status—Whether the policy is active or inactive. If the policy is active, the SBC applies the defined rules to events.
	• First CAC Scope—The scale that the CAC applies for, such as source adjacency or destination adjacency. This is the first CAC table used for CAC policy match.
	• Description—A brief description of the policy set.
Call Policy	A call policy set is used for number analysis and routing.
	The SBE Call Policy Set table contains the following information:
	• Policy Set Number—An identifying number the SBE has assigned to the policy set.
	• Status—Whether the policy is active or inactive. If the policy is active, the SBC applies the defined rules to events.
	• First Call Table—The first call table used for call policy match.
	• Description—A brief description of the policy set.
Codec List	The SBE Codec List table contains the following information:
	Name—The name of the codec list.
	• Codecs—The codecs contained in each list.

Table 24-8 Policy Properties (continued)

Branch	Description
Current Blacklisting	The Current Blacklistings table contains the following information:
	• Type—The type of source this blacklist applies to. Blacklists are used to block certain VoIP services that meet specified conditions.
	 Event Type—The type of event this blacklist applies to, such as CORRUPT_MESSAGE.
	• Is All Source Addresses—Whether the blacklist applies to all source IP addresses:
	 True—Ignore any IP address in the Source Address field.
	 False—Use the IP address in the Source Address field.
	• Source Address—The IP address that this blacklist applies to.
	• Source Port Number—The port number that this blacklist applies to.
	• Source Port Type—The type of port this blacklist applies to. <i>All</i> is a valid entry.
	• Time Remaining—The amount of time, in hours, minutes, or seconds, before the blacklist is removed.
Hunting Trigger	The hunting trigger enables the SBC to search for other routes or destination adjacencies if an existing route fails.
	The Global Hunting Trigger List table contains the following information:
	• Hunting Mode—Indicates the protocol to use to search for routes, such as Session Initiation Protocol (SIP).
	 Hunting Triggers—The SIP responses, such as 468 or 503, that indicate the SBC is to search for an alternate route or destination adjacency. SIP responses are defined in RFC3261.

Table 24-8 Policy Properties (continued)

Branch	Description
QoS Profile	QoS profiles can be used by CAC policies and are used exclusively for marking IP packets.
	The QoS Profile table contains the following information:
	• Name—The name of the QoS profile.
	• Class of Service—The type of call this profile applies to, such as voice, video, signaling, or fax.
	 Marking Type—The type of marking to be applied to the IP packet. Options include Passthrough, Differentiated Service Code Point (DSCP), and IP Precedence/ToS.
	• IP Precedence—If the marking type is IP Precedence, the specified precedence, either 0 or 1.
	• ToS—If the marking type is ToS, the ToS value.
	• DSCP—If the marking type is DSCP, the DSCP value.
SDP	The Session Description Protocol (SDP) content pane contains the following tabs, each with their respective table:
	SBE SDP Policy Table:
	 Instance Name—The name of the policy table.
	 SBE SDP Match Table—The name of the SDP match table.
	SBE SDP Match Table:
	 Instance Name—The name of the SDP match table.
	 Match Strings—The match criteria.
	 Table Type—The type of table, either Blacklist or Whitelist.

Viewing SIP Properties

To view SIP properties, choose **Logical Inventory > Session Border Controller > SIP**.

Table 24-9 describes the SIP entries that appear in logical inventory for the SBC SBE.

Table 24-9 SIP Properties

Branch	Description
SIP Account	The SBE Account table contains the following information:
	Name—The name of the account associated with the adjacencies.
	Adjacencies—The identified adjacencies.
SIP Adjacency	An adjacency represents a signaling relationship with a remote call agent. One adjacency is defined per external call agent. Each adjacency belongs within an account. Each incoming call is matched to an adjacency, and each outgoing call is routed out over a second adjacency.
	The SBC SIP Adjacencies table contains the following information:
	Name—The adjacency name.
	• Status—The status of the adjacency, either Attached or Detached.
	Signaling Address—The local IP address and port (optional) for communications.
	Signaling Peer—The remote IP address and port (optional) for communications.
	Description—A brief description of the adjacency.
SIP Adjacency Group	The Adjacencies Groups table contains the following information:
	Name—The name of the SIP adjacency group.
	Adjacencies—The adjacencies that belong to the group.
SIP Profile	The SBC can be configured with whitelist and blacklists profiles on SIP messages. The following types of SIP profiles are available:
	Header profile—A profile based on SIP header information.
	Method profile—A profile based on SIP method strings.
	• Option profile—A profile based on SIP option strings.
	• Parameter profile—A profile based on SIP parameters.
SIP Profile >	The SIP Header Profiles table contains the following information:
Header Profile	Name—The name of the SIP header profile.
	• Status—Whether or not the profile is in use.
	• Profile Type—The type of profile:
	 Whitelist—Accepts SIP requests that match the profile.
	 Blacklist—Rejects SIP requests that match the profile.
	• Description—A brief description of the profile.

Table 24-9 SIP Properties (continued)

Branch	Description
SIP Profile >	The SIP Method Profiles table contains the following information:
Method Profile	Name—The name of the SIP method profile.
	• Status—Whether or not the profile is in use.
	• Profile Type—The type of profile:
	 Whitelist—Accepts SIP requests that match the profile.
	 Blacklist—Rejects SIP requests that match the profile.
	• Description—A brief description of the profile.
	• Is Passthrough—Whether or not passthrough is enabled:
	 True—Permits message bodies to be passed through for nonvital methods that match this profile.
	 False—Strips the message body out of any nonvital SIP messages that match this profile.
SIP Profile >	The SIP Option Profiles table contains the following information:
Option Profile	Name—The name of the SIP option profile.
	• Status—Whether or not the profile is in use.
	• Profile Type—The type of profile:
	 Whitelist—Accepts SIP requests that match the profile.
	 Blacklist—Rejects SIP requests that match the profile.
	• Description—A brief description of the profile.
	Options—The SIP option strings that define this profile, such as host user-agent, refer redirect, or replaces.

Table 24-9 SIP Properties (continued)

Branch	Description	
SIP Profile >	The SIP Parameter Profiles table contains the following information:	
Parameter Profile	Name—The name of the SIP parameter profile.	
	• Status—Whether or not the profile is in use.	
	Description—A brief description of the profile.	
SIP Timer	The SBE SIP Timer table contains the following information:	
	• TCP Connect Timeout—The time, in milliseconds, that the SBC waits for a SIP TCP connection to a remote peer to complete before failing that connection. The default is 1000 milliseconds.	
	• TCP Idle Timeout—The minimum time, in milliseconds, that a TCP socket does not process any traffic before it closes the connection. The default is 120000 milliseconds (2 minutes).	
	• TLS Idle Timeout—The minimum time, in milliseconds, that a Transport Layer Security (TLS) socket does not process traffic before it closes the connection.	
	• Invite Timeout—The time, in seconds, that the SBC waits for a final response to an outbound SIP invite request. The default is 180 seconds. If no response is received during that time, an internal request timeout response is generated and returned to the caller.	
	• UDP First Retransmit Interval—The time, in milliseconds, that the SBC waits for a UDP response or ACK before sending the first retransmission of a signal. The default value is 500 milliseconds.	
	• UDP Max Retransmit Interval—The maximum time interval, in milliseconds, for an SBC to retransmit a signal. The maximum retransmission interval is 4000 milliseconds (4 seconds).	
	• UDP Response Linger Period—The time, in milliseconds, for which the SBC retains negative UDP responses to invite requests. The default value is 32000 milliseconds (32 seconds).	

Viewing SBC Statistics

The following SBC statistics commands can be launched from the inventory by right-clicking the appropriate node and choosing **Commands > Configuration**. Your permissions determine whether you can run these commands (see Permissions for Vision Client NE-Related Operations, page B-4). To find out if a device supports these commands, see the *Cisco Prime Network 5.0 Supported Cisco VNEs*.

Command	Navigation	Description
Current 15 Min Statistics	Show > PM >	Based on the command selected, the device's statistics are displayed.
Current 5 Min Statistics		
Current Day Statistics		
Current Hour Statistics		
H.248 Statistics		
Previous 15 Minutes Statistics		
Previous 5 Minutes Statistics		
Previous Day Statistics		
Previous Hour Statistics		
CPS Data		
Media Statistics	Show >	
Components		

Configuring SBC Components

The following SBC component commands can be launched from the inventory by right-clicking the appropriate node and choosing **Commands > Configuration**. Your permissions determine whether you can run these commands (see Permissions for Vision Client NE-Related Operations, page B-4). To find out if a device supports these commands, see the *Cisco Prime Network 5.0 Supported Cisco VNEs*.

Command	Navigation	Description
SIP Adjancencies		
Add SIP Adjacency	Right-click the SBC node > Commands > Add > SIP Adjacency	Add an SIP adjacency or update an existing SIP adjacency.
Update SIP Adjacency Delete SIP Adjacency	In the SIP Adjacencies window, right-click the adjacency instance > Commands > Update /Delete > SIP Adjacency	
Add SIP Adjacency Outbound AuthRealm Update SIP Adjacency Outbound AuthRealm Delete SIP Adjacency Outbound AuthRealm	In the SIP Adjacencies window, right-click the SIP adjacency instance > Commands > Add /Update/Delete > SIP Adjacency Outbound AuthRealm	Use this command to add a SIP adjacency outbound authentication realm.

Command	Navigation	Description
SIP Header Profiles		
Add SIP Header Profile	Right-click the SBE node > Commands > Add > SIP Header Profile	Add or change an SIP header profile.
Update SIP Header Profile Delete SIP Header Profile	In the SIP Header Profiles window, right-click the profile > Commands > Update/Delete > SIP Header Profile	
Add SIP Header Profile Header	In the SIP Header Profiles window, right-click the SIP header profile instance > Commands > Add > SIP Header Profile Header	Add more headers (up to 3) to an existing SIP header profile (after the existing SIP header profile is discovered).
Delete SIP Header Profile Header	In the header profile properties window, right-click the header you want to remove and choose > Commands > Delete > IP Header Profile Header	Delete a header from a header profile.
Add SIP Header Profile Entry	Right-click the SBE node > Commands > Add > SIP Header Profile Entry	Add an entry to an existing SIP header profile header.
Update SIP Header Profile Entry Delete SIP Header Profile Entry	Right-click an entry in the SIP Header Profile Header Properties window > Commands > Update/Delete > SIP Header Profile Entry	Update or delete an existing SIP Header Profile entry in the SIP Header Profile Header Properties window.
Add SIP Header Profile Condition	Expand the SBE node, SIP node, and SIP Profile node, and click the Header Profile node > Double-click a header profile to open the SIP Header Profile Properties window > Double-click a header > Right-click an entry > Commands > Add > SIP Header Profile Condition	Add a condition to a SIP header profile header.
SIP Option Profiles	1	
Add SIP Option Profile	Right-click the SBE node > Commands > Add > SIP Option Profile	Configure SIP option profile parameters such as option profile type (whitelist or blacklist), profile
Update SIP Option Profile Delete SIP Option Profile	Right-click a profile in the SIP Option Profile window > Commands > Update/Delete > SIP Option Profile	options, and so on.

Command	Navigation	Description
Add SIP Parameter Profile	Right-click the SBE node > Commands > Add > SIP Parameter Profile	Configure SIP parameter profile.
Delete SIP Parameter Profile	Click the Parameter Profile node, right-click the profile > Commands > Delete > SIP Parameter Profile	
Add SIP Parameter Profile Parameter	Expand the SBE node, SIP node, SIP Profile node > Click the Parameter Profile > Right-click the profile instance > Commands > Add > SIP Parameter Profile Parameter	Add, update, or delete parameter in SIP parameter profiles. Specify the parameter name to be updated and the name of the profile in which you want to add or update the parameter.
Update SIP Parameter Profile Parameter Delete SIP Parameter Profile Parameter	Double-click the profile that contains the parameter > Right-click the parameter > Commands > Update/Delete > SIP Parameter Profile Parameter	
Blacklists		
Add Blacklist	Right-click the SBE node > Commands > Add > Blacklist	Add or delete blacklist in the SBC node. Specify the IP address, port
Delete Blacklist	In the Configured Blacklist Properties window, right-click the blacklist > Commands > Delete > Blacklist	type, and the port number to be blacklisted.
Add Blacklist Reason	Right-click the blacklist instance > Commands > Add > Blacklist Reason	Add, modify, or delete a blacklist reason for the blacklisted node in SBC.
Update Blacklist Reason Delete Blacklist Reason	In the Configured Blacklist Properties window, right-click a blacklist reason > Commands > Update/Delete > Blacklist Reason	
Call Admission Control (CAC) Policies	
Add CAC Policy Set	Right-click the SBE node > Commands > Add > CAC Policy Set	Add, modify, or delete a CAC Policy Set
Update CAC Policy Set Delete CAC Policy Set	In the CAC Policy Set window, right-click the policy set instance > Commands > Update/Delete > CAC Policy Set	

Command	Navigation	Description
Add CAC Policy Table	In the CAC Policy Set window, right-click the CAC policy instance > Commands > Add > CAC Policy Table	Add or modify a CAC policy table in an existing CAC policy set.
Update CAC Policy Table	Right-click a policy table in the	
Delete CAC Policy Table	CAC Policy Set Properties window > Commands > Update/Delete > CAC Policy Table	
Add CAC Rule Entry	Right-click a policy table > Commands > Add > CAC Rule Entry	Add or modify a CAC rule entry in an existing CAC policy table.
Update CAC Rule Entry	Right-click an entry in the CAC	
Delete CAC Rule Entry	Rule Entry tab > Commands > Update/Delete > CAC Rule Entry	
Add Call Policy Set	Right-click the SBE node > Commands > Add > Call Policy Set	Add, modify, or delete a Call Policy Set.
Update Call Policy Set	Right-click a policy set in the Call	Note When you add a new call policy set, you can add three
Delete Call Policy Set	Policy Set window > Commands > Update > Call Policy Set	call policy tables. You can add more tables after the call policy set you created is discovered.
Add Call Policy Table	In the Call Policy Set window, right-click the policy set > Commands > Add > Call Policy Table	Add, modify, or delete call policy tables
Update Call Policy Table	Double-click a policy set, then	
Delete Call Policy Table	right-click a policy table > Commands > Update > Call Policy Table	
Add Call Rule Entry	Right-click a policy table > Commands > Add > Call Rule Entry	Add, modify, or delete an entry from an existing call policy table.
Update Call Rule Entry	Double-click a policy table, then	
Delete Call Rule Entry	right-click an entry > Commands > Update/Delete > all Rule Entry	
Codec Lists		I
Add Codec List	Right-click the SBE node > Commands > Add > Codec List	Add, or delete a Codec List
Delete Codec List	In the Codec List window, right-click a list instance > Commands > Delete > Codec List	

Command	Navigation	Description
Add Codec List Entry	In the Codec List window, right-click the codec list instance > Commands > Add > Codec List Entry	Add, modify, or delete an entry in a codec list.
Update Codec List Entry	Double-click the codec list, then	
Delete Codec List Entry	right-click the codec > Commands > Update /Delete> Codec List Entry	
Media Addresses	+	
Add Media Address	Right-click the SBE node > Commands > Add > Media Address	Add a media address or media Address DBE with parameters indicating that media address is managed by the Data Border Element (DBE) or Media Gateway Configuration (MGC).
Add Media Address Dbe	Right-click the DBE node > Commands > Add > Media Address Dbe	
Delete Media Address	Expand the DBE node and click the Media Address node >Right-click the media address > Commands > Delete > Media Address	Delete an existing media address from the DBE node.
QoS Profiles		
Add QoS Profile	Right-click the SBE node > Commands > Add > QoS Profile	Configure QoS profile on a SBE node
Update QoS Profile	Right-click the profile in the QoS	
Delete QoS Profile	Profile window > Commands > Update > QoS Profile	

Configuring SBC Components