

Cisco BTS 10200 Softswitch H.248 Line-Side Access Control Feature, Release 7.0

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The Cisco BTS 10200 Softswitch H.248 Line-Side Access Control feature enables the Cisco BTS 10200 Softswitch to use H.248 line-side signaling to communicate with H.248-protocol based network elements. This feature also enables the BTS 10200 Softswitch to provide protocol interworking between H.248 and session initiation protocol (SIP). The support for H.248 Protocol renders necessary protocol interworking to complete voice over packet calls.

The H.248 Line-Side Access Control provides Class-5 features to subscribers behind media gateways (MGWs) interfacing with the BTS 10200 Softswitch using the H.248 protocol. This feature further positions the BTS10200 as a switching platform for heterogeneous networks.



Note

This feature addresses only the line-side or residential gateway support of H.248 protocol interface, and the features set is applicable to the line-side.

The Megaco/H.248 protocol is the international standard for media gateway controller (MGC)/MG device control protocol developed jointly by the IETF and ITU-T open standards bodies.

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Overview

This section covers these topics on the H.248 Line-Side Access Control feature:



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- [Cisco BTS 10200 Softswitch in H.248 Packet Network, page 2](#)
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Cisco BTS 10200 Softswitch in H.248 Packet Network

The H.248 line-side access control feature provides a gateway control interface between the Cisco BTS 10200 Softswitch and the H.248 supported Media Gateways. This new interface is based on the ITU-SG16/IETF specification of H.248, which defines a decomposed gateway architecture. This architecture is composed of:

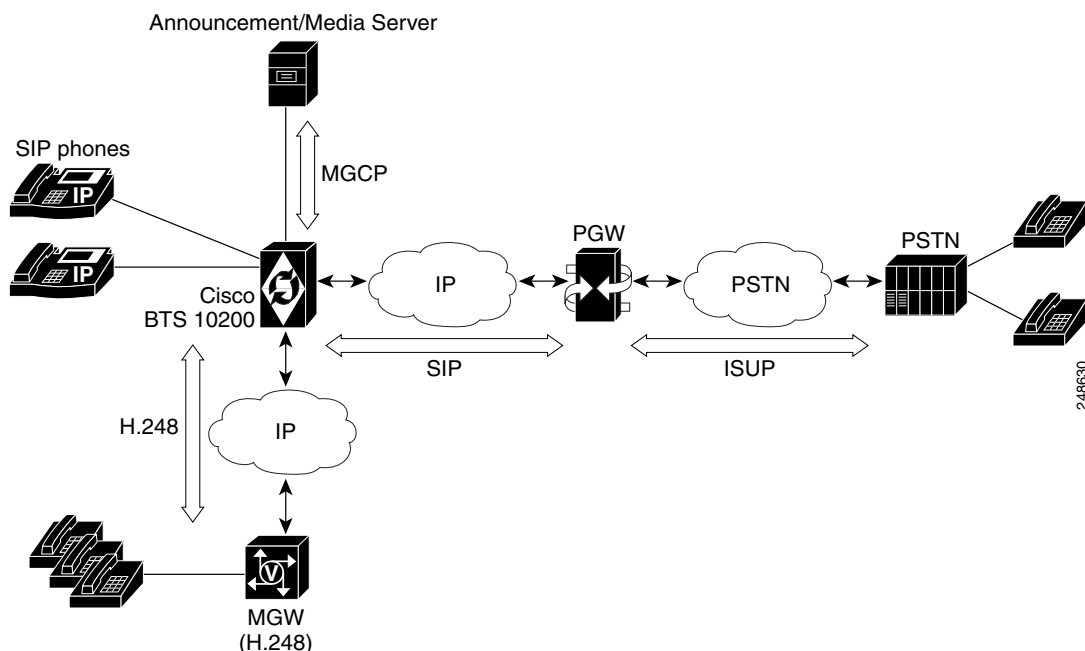
- A MGC, an intelligent entity that manages the establishment and the tearing down of calls.
- A MGW, a simple entity that responds to MGC requests and independently processes media streams.
- A distributed call control functionality between an MGC and an MGW. The MGC sends commands to the MGW using the H.248 protocol.

The BTS 10200 Softswitch supports media gateway control protocol (MGCP), which is based on IETF Informational RFC 2705/3435 as a MGC/MG device control protocol to the media gateways. On the other hand, H.248 is an IETF official standard MGC/MG device call control protocol.

Release 7.0 adds H.248 as yet another MGC/MG call control protocol, in addition to the existing support for MGCP. Independently, both Megaco/H.248 and MGCP can co-exist and run on the same BTS10200 platform simultaneously. However, Release 7.0 does not provide call interworking between MGCP and H.248. For H.248 subscriber announcement support, a limited interaction with MGCP is provided, because the BTS 10200 Softswitch supports announcements based only on the MGCP interface.

Figure 1 shows a network architecture example in which BTS 10200 provides native support for H.248 subscribers. As shown in the figure, BTS 10200 can establish calls between networks with various protocols, including calls between H.248 subscribers.

Figure 1 Example of a BTS 10200 in the H.248 Network



The Cisco BTS 10200 Softswitch H.248-based functions can be used on managed H.248 networks that contain the Cisco BTS 10200 Softswitch and these network element types:

- H.248-based IP PBX systems
- Analog phones connected to H.248 Access/Media Gateways

Summary of H.248 Capabilities

The BTS 10200 Softswitch provides a large number of features and functions for users in an H.248 network. This section contains quick-reference lists of the features and functions in the following categories:

- [Features and Functionality](#)
- [Protocol-Specific Features](#)
- [Subscriber and Network Features](#)
- [CALEA Features](#)
- [Protocol Interworking](#)

Features and Functionality

The BTS 10200 Softswitch supports these features and functionality in the H.248 network:

- Basic calls originated from and terminated to subscribers using H.248 protocol.

- Codec selection and negotiation. Codecs supported in BTS 10200 are also supported in the H.248 network.
- Codec speeded due to feature interaction such as call waiting, three way call, and so on.
- Ringback on connection from terminating subscriber and local ringback from originating subscriber.
- DSCP marking H.248 signaling messages.
- Redundant Call Agent with virtual IP address as seen by the gateways.
- Support for redundant MGWs with the same configured IP address.
- Audit for endpoint state synchronization after fail-over.
- Media Gateway keep-alive functionality.
- DTMF relay/pass-through support
 - Enabling pass-through using G.711
 - Using RFC-2833 (implicit authorization) specific to GW implementation.
 - Using RFC-2833 (call agent authorization).
- Fax and Modem—GW autonomous passthrough (supported only if both gateways can automatically switch to G.711 protocol).
- Text/TDD—GW autonomous passthrough (supported only if both gateways can automatically switch to G.711 protocol).
- Call agent overload handling.
- VoIP metrics—RTP/analog port metrics.
- Gateway DNS caching.
- LCFO/OSI signaling support for H.248 endpoints.

Protocol-Specific Features

The BTS 10200 Softswitch supports these protocol-specific features:

- Megaco/H.248 protocol to communicate with access gateways using line-side signaling and bearer path management.
- H.248 version 2 capabilities and procedures as specified in ITU-T H.248.1 standard; for example, context, descriptors, packages, and so on. (Audit capability command and topology descriptors are not supported in Release 7.0.)
- Text encoding of H.248/Megaco protocol as described in H.248.1 standard, Annex B.
- Support for User Datagram Protocol (UDP) as transport protocol as specified in H.248.1 standard, Annex D.
- Automatic calculation of timeout for outstanding transactions based on the methods suggested in Annex D.1.3, D.1.4, and D.1.5 of H.248 standard.
- Guarantee consistent operation of the Media Gateway (ordering of commands, and so on as defined in H.248.1 standard, section 9.1.)
- Megaco/H.248 error and reason code as specified in ITU H.248.8 standard.

Subscriber and Network Features

- [Anonymous Call Rejection \(ACR\)](#)

- Caller ID for
 - [Calling Number Delivery](#) (CND)
 - [Calling Number Delivery Blocking](#) (CNDB)
 - [Calling Name Delivery](#)
- [Call Waiting](#) (single-connection based)
- [Three Way Calling](#) (single-connection based) with external Media Server.
- [Call Forwarding Busy](#) (CFB)
- [Call Forwarding Unconditional](#) (CFU)
- [Call Forwarding No Answer](#) (CFNA)
- Single connection based features, such as Call Hold (CHD) and other centrex features—CND, CNDB, CFU, CFB, CFNA, CW, CT, TWC, ACR, DND, COS.
- [Call Transfer](#) (CT) (single-connection based).
- [Class of Service](#) (COS) screening
- [Do Not Disturb](#) (DND)
- Vertical Service Codes (VSCs). (The valid formats for VSC ASCII strings are listed in the VSC table in the Cisco BTS 10200 Softswitch CLI Database. To view the current VSC values provisioned on your system, use the **show vsc** CLI command. To provision VSCs, see the VSC provisioning procedure in the *Cisco BTS 10200 Softswitch Provisioning Guide*.)
- [Voicemail \(VM\) and Voicemail Always](#) (VMA)
- [Message Waiting Indicator](#) (MWI) and [Visual Message Waiting Indicator](#) (VMWI)
- Announcements for H.248 subscribers are provided using MGCP Controlled Announcement Servers.
- [Multiline Hunt Group](#) (MLHG)
- [Centrex group](#)

For details on the features listed above, see the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions Guide*.

CALEA Features

The BTS 10200 Softswitch supports these CALEA features:

- Reporting of call data to DF (Delivery Function) server.

The BTS 10200 Softswitch provides the PacketCable EMS/RADIUS interface for the transmission of call-identifying information to the lawful intercept delivery function (DF) server, as required by Appendix A, "PCES Support," in PKT-SP-EM1.5-I02-050812, PacketCable Event Messages Specification (EMS), August 12, 2005.
- Reporting of call content to DF server.

Support for call-content capturing is through Service Independent Intercept (SII) architecture.

For more information, refer to "General Description of Lawful Intercept Implementation" section in the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Description Guide*.

Protocol Interworking

Protocol interworking between these pairs are supported:

- H.248 subscriber and H.248 subscriber.
- H.248 subscriber and SIP subscriber.
- H.248 subscriber and SIP trunk.
- SIP subscriber and H.248 subscriber.
- SIP trunk and H.248 subscriber.
- H.248 subscriber to MGCP based Announcement Server.

Prerequisites for the Feature

Internal Components and Functions

- Call Agent (CA) CA and Feature Server (FS) are provisioned.
- Dial Plan is provisioned

External Components

External network elements that connect subscribers to the BTS 10200, such as H.248 MGWs and SIP proxies, are installed and operating.

Subscribers

Subscribers and subscriber profiles are provisioned.

How to Provision the H.248 Line-Side Access Control Feature

This section explains how to provision the H.248 Line-Side Access Control feature. In this procedure, “you” refers to the service provider. We recommend that you perform these tasks in the sequence shown here:

- [H.248 Dial Plan Provisioning, page 7](#)
- [H.248 Gateway Provisioning, page 8](#)
- [H.248 Subscriber Provisioning, page 10](#)



Note

The commands shown in this section are examples; you should provision values that are appropriate for your network and service offerings. CLI syntax allows you to enter commands in uppercase or lowercase. It also allows you to enter hyphens (-) or underscores (_) interchangeably in most cases. (Exceptions, if any, are noted in the procedures.)

The [Cisco BTS 10200 Softswitch CLI Database](#) provides a complete list of tokens for each CLI table, as well as the allowed values, default values, and detailed descriptions for each token.

Sections that follow provide an example of the steps required to provision the Cisco BTS 10200 Softswitch to support H.248 traffic and lists example CLI commands with mandatory tokens.

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, see the Cisco BTS 10200 Softswitch CLI Database.

H.248 Dial Plan Provisioning

SUMMARY STEPS

```

add digit-map
add destination
add ndc
add office-code
add exchange-code
add intl-dial-plan-profile
add dial-plan-profile
add dial-plan
add pop

```

DETAILED STEPS

	Command	Purpose
Step 1	<pre> add digit-map id=h248; digit-pattern=0 00 [2-9]11 [2-9]xx[2-9]xxx xxx 1[2-9]xx[2-9]xxxxxx 0[2-9]xx[2-9]xxxxx x 011xxxxxx 101xxxx # *[4-9]x *[2-3]xx 11x x [2-9]#[2-4]x#[2-9] [2-4]x 01[2-9]xxxxx ;description=h248 digit-map; </pre>	<p>Adds digit-map with the digit-pattern.</p> <p>The Digit Map table tells a media gateway (MGW) how to collect and report dialed digits. The CA uses a default digit-map ID for normal digit collection unless a digit map ID is assigned to the subscriber.</p>
Step 2	<pre> add destination dest-id=h248; call-type=LOCAL; route-type=SUB; </pre>	<p>Adds the destination.</p> <p>The Destination table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.</p>
Step 3	<pre> add ndc digit-string=991; </pre>	<p>Adds national destination code (ndc).</p> <p>The ndc table defines the home area codes supported by the CA.</p>
Step 4	<pre> add office-code ndc=991;ec=243;call_agent_id=CA146; </pre>	<p>Adds office codes.</p> <p>The Office Code table specifies the office codes assigned to a particular CA. The office codes defined in this table normally terminate to a subscriber.</p>
Step 5	<pre> add exchange-code ndc=991; ec=243; min-dn-length=10; max-dn-length=10; add exchange-code ndc=991; ec=204; min-dn-length=10; max-dn-length=10; </pre>	<p>Specifies exchange codes.</p>

	Command	Purpose
Step 6	<code>add intl-dial-plan-profile id=h248;</code>	<p>Adds international dial plan profile.</p> <p>The International Dial Plan Profile table is used to create unique IDs for international dial plans. This ID must be created before provisioning the International Dial Plan table.</p>
Step 7	<code>add dial-plan-profile id=h248; nanp-dial-plan=y; intl-dial-plan-id=h248;</code>	<p>Adds dial plan profile.</p> <p>The Dial Plan Profile table creates dial-plan-profile IDs before they are assigned to subscribers or trunk groups. The dial-plan-profile ID links digit-string entries in the Dial Plan table within a dial plan. Different dial-plan-profile IDs are assigned to subscribers and trunk groups. A dial-plan-id must be created in this table before entries can be added to the Dial Plan table.</p>
Step 8	<pre>add dial-plan id=h248; digit-string=991-243; dest-id=h248; min-digits=10; max-digits=10; noa=UNKNOWN; add dial-plan ID=h248; digit-string=991-204; dest-id=h248; min-digits=10; max-digits=10; noa=UNKNOWN; add dial-plan ID=h248; digit-string=991-243; dest-id=h248; min-digits=10; max-digits=10; noa=NATIONAL; add dial-plan ID=h248; digit-string=991-204; dest-id=h248; min-digits=10; max-digits=10; noa=NATIONAL;</pre>	<p>Adds dial plan table.</p> <p>Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile ID are considered a dial plan.</p>
Step 9	<code>add pop id=h248; state=TX; country=USA; digit-map-id=h248; itp=N; zero-minus=LEC; BLOCK-EAWOPIC=USE-DIAL-PLAN; PIC2-REQD=N; TIMEZONE=CDT; CNAM-OPTION=EXT-LIDB; AR-ACTIVATION-LEVEL=TWO;</code>	<p>Adds point of presence (POP).</p> <p>The Point of Presence table contains the default dialing and routing characteristics. Each originating entity (subscriber or trunk group) is assigned to a POP. The POP also performs policy routing, for example, to route the call to the nearest announcement server in the POP, or to the nearest interLATA carrier location within a POP.</p>

H.248 Gateway Provisioning

SUMMARY STEPS

```
add h248-gw-profile
add h248-gw-property
add mgw
add termination
add codec_grp_profile
add h248_codec_descriptor
add codec_grp
```


DETAILED STEPS

	Command	Purpose
Step 1	<code>add h248-gw-profile id=vmsan;</code>	<p>Adds H.248 gateway profile.</p> <p>The h248-gw-profile table defines the profile identification for H.248 gateway properties. An ID must be created in this table before entries are added to the MGW table.</p>
Step 2	<code>add h248-gw-property id=vmsan;</code>	<p>Specifies the H.248 gateway properties.</p> <p>The H.248 Gateway Property table provides templates for defining a media gateway using H.248 as the call control signaling. The table identifies the specifications and settings necessary for communications between the CA and each type of media gateway. An ID must be created in this table before entries can be added to the MGW table.</p> <p>NOTE: The h248-gw-property ID should be same as h248-gw-profile ID.</p> <p>See the CLI Database for a complete list of H.248 gateway properties parameters.</p> <p>For single connection based services such as TWC, CW, CT, and CHD, you need to set the SUPPORT_SINGLE_CONNECTION_ONLY parameter in the h248-gw-property table to Y.</p>
Step 3	<code>add mgw ID=10.89.225.14; type=RGW; tsap-addr=10.89.224.18; call-agent-id=CA146; protocol=H248; h248-gw-profile-id=vmsan;</code>	<p>Adds MGW.</p> <p>The MGW table specifies information about each MGW managed by the Call Agent. The MGW can be uniquely addressed by domain name, an IP address, or the TSAP address.</p> <p>NOTE: In the add mgw command tsap-addr should be in IP address (IPV4) format. Domain name /FQDN format is not supported.</p> <p>The protocol token is used to specify H.248 as the call control signaling protocol for the gateway.</p> <p>The transport-type specifies the transport protocol used for call control signaling protocol for the gateway. UDP is the default value for the token.</p> <p>The h248-gw-profile-id specifies the ID of the H248 gateway profile to which the subscriber is assigned in the h248-gw-profile table.</p>

	Command	Purpose
Step 4	<code>add termination prefix=aaln/sl/; port-start=1; port-end=50; type=LINE; mgw-id=10.89.225.14;</code>	Adds termination. The termination table holds information about each termination/endpoint managed by the Call Agent.
Step 5	<code>add codec_grp_profile id=h248</code>	Specifies codec group profile. The codec_grp_profile table contains the list of valid codec group profile IDs.
Step 6	<code>add h248_codec_descriptor id=new_codec;plt_1=dyn;sdp_line_1=a=rtptime:\$1 new_codec/8000</code>	Allows provisioning of pre-defined codecs from h248-codec-descriptor-base table and provisioning of custom codecs. The H248 codec descriptor table is populated with default codecs during installation. The user has an option to define additional custom codecs (or any session-level or media-level SDP parameter) in this table. The ID parameter specifies the unique name that describes the codec. The PLT_1 parameter specifies the payload type per codec descriptor). A payload type may be expressed as <ul style="list-style-type: none"> • null (default)—no payload type needs to be specified as part of the media description), • 0 - 127 • dyn (dynamic).
Step 7	<code>add codec_grp codec_grp_profile_id=h248;h248_codec_descriptor_id=new_codec;priority=1</code>	Specifies the prioritized list of codecs supported for H.248 endpoints.

H.248 Subscriber Provisioning

SUMMARY STEPS

```

add subscriber-profile
add qos
add subscriber

```

DETAILED STEPS

	Command	Purpose
Step 1	add subscriber-profile id=h248; dial-plan-id=h248; POP-ID=h248;	Provisions the subscriber profile table to set the dial-plan and pop ID assigned to subscriber in the Dial Plan table.
Step 2	add qos id=h248; codec-grp-profile-id=h248;	Sets the QOS ID and codec type in QOS table. The Quality of Service (QoS) table provides Codec Negotiation service. Codec Negotiation service is the process a CA uses to find a common codec (compression/decompression of a signal) between two gateways so a call can go through. Set the QOS ID and codec type in this table.
Step 3	add subscriber ID=991-243-2101; category=INDIVIDUAL; name=vmsan-sub1; status=ACTIVE; billing-dn=9912432101; dn1=9912432101; term-id=aaln/s1/1; sub-profile-id=h248; mgw-id=10.89.225.14; qos-id=h248;	Defines the characteristics of a subscriber or group of subscribers in a Call Agent. All termination numbers reached by a directory number (DN) must be set up as a subscriber.

Maintaining and Troubleshooting Commands**SUMMARY STEPS**

```

set_trace call_agent
set-trace mgw
add activity

```

DETAILED STEPS

Step	Command	Purpose
Step 1	<pre>set_trace call_agent id=CA146;h248_error_flag=SYS_ERR;h248_er ror_level=MAJOR;</pre>	<p>The set-trace command enables specific trace details.</p> <p>The call-agent table has two additional fields, H248-ERROR-LEVEL and H248-ERROR-FLAG to enable or disable various error trace details of the H.248 protocol stack using get-trace/set-trace command.</p> <p>The permitted values for the H248-ERROR-FLAG parameter are:</p> <p>SYS_ERR—Enables system errors</p> <p>PROTO_ERR—Enables protocol errors</p> <p>API_ERR—Enables API processing errors</p> <p>ALL—Enables all errors</p> <p>The default value of the H248-ERROR-FLAG parameter is SYS_ERR.</p> <hr/> <p>The H248-ERROR-LEVEL parameter enables reporting of different debug error levels in H.248 stack. The permitted values for this parameter are:</p> <p>MAJOR—Major errors represent the conditions in the system, which degrade the performance of the system. The system may still continue to function but it indicates that some corrective action is needed.</p> <p>MINOR—Minor errors represent the conditions in the system that are harmless to the performance of the system as a whole. They inform the system operator that a particular condition has occurred. It is up to the discretion of the operator to act on this information.</p> <p>NONE—No error is reported.</p> <p>The default value of the H248-ERROR-LEVEL parameter is MAJOR.</p>

Step	Command	Purpose
Step 2	<pre>set-trace mgw id=msan; h248-trace-flag=proto-proc;h248-trace-level=detail;</pre>	<p>The mgw table also supports enabling and disabling of H.248 protocol stack traces.</p> <p>The H248-TRACE-FLAG parameter enables different debug trace flags in the H.248 stack.</p> <p>The permitted values for the H248-TRACE-FLAG parameter are:</p> <p>SYS_ERROR—(Default) Reports system errors traces.</p> <p>INIT—Reports initialization traces.</p> <p>INCOMING—Reports incoming traces.</p> <p>OUTGOING—Reports outgoing traces.</p> <p>PROTO_PROC—Reports protocol processing traces.</p> <p>PROTO_EXCEPTION—Reports protocol exception traces.</p> <p>ALL—Reports all traces.</p> <p>The H248-TRACE-LEVEL parameter enables different debug error levels in H.248 stack.</p> <p>The permitted values for the H248-TRACE-LEVEL parameter are:</p> <p>NO— No error is reported.</p> <p>BRIEF—Brief traces are reported.</p> <p>DETAIL—Both brief and detailed traces are reported.</p>
Step 3	<pre>add activity id=H248-LINE-AUDIT;freq=DAILY;enabled=Y;</pre>	<p>The activity table is provisioned to activate H.248 bulk audit procedure with the optional parameter to control audit during Call Agent switchover or cold start and restart.</p>

Provisioning Three-Way Calling for H.248

Follow the steps to configure Three-Way Calling (TWC) feature for H.248 endpoints.

SUMMARY STEPS

```
add conference_tg_profile
add trunk_grp
add termination
add trunk
add mgw-profile
add route
add route_guide
add ca_config
change conference_tg_profile
control trunk_grp
control trunk_termination
unequip trunk_termination
```

```
control trunk_termination
change conference_tg_profile
```

DETAILED STEPS

Step	Command	Purpose
Step 1	add conference_tg_profile id=conf-ipunity;	Add conference trunk group profile (conference_tg_profile) table. The Conference Trunk Profile table is required for IP networks and media servers.
Step 2	add trunk_grp id=80034;tg_type=CONF;tg_profile_id=conf -ipunity;pop_id=default;call_agent_id=CA 146;tg=80034;	Add trunk group (trunk_grp). The Trunk Group (trunk_grp) table identifies the trunk group and maps to its MGW
Step 3	add termination prefix=cnf/ port-start=1; port-end=10; type=trunk; mgw-id=ipunity-1;	Add termination. The Termination (termination) table holds information about each termination/endpoint managed by the CA. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits and allows termination groupings for ISDN PRI and multiline hunt groups for a single subscriber.
Step 4	add trunk cic-start=1; cic-end=10; tgn-id=80034; termination-prefix=cnf/ termination-port-start=1; termination-port-end=10; mgw-id=ipunity-1;	Add trunk. The Trunk (trunk) table identifies the trunk group and maps it to the associated media gateway. It also specifies the circuit identification code (CIC) range and terminations.
Step 5	add mgw-profile ID=ivr-ipunity-h248; VENDOR=ABC; PACKET-TYPE=IP; AAL1=N; AAL2=N; AAL5=N; PVC=N; SVC=N; SPVC=N; MGCP-VERSION=MGCP_1_0;TERMINATION-PREFIX =cnf/;	Add mgw profile (mgw_profile). The Media Gateway Profile (mgw-profile) table provides templates for defining a media gateway. The table identifies the specifications and settings necessary for communications between the CA and each type of media gateway. An ID must be created in this table before entries can be added to the Media Gateway table.
Step 6	add route id=ivr_rte1;tg_selection=seq; tgn1_id=80034;	Add route. The Route (route) table contains a list of up to ten trunk groups to route a call. If all the trunk groups are OOS or not available, then as per the policy defined in the route table, the route advance is attempted 3 times before releasing the call or picks up an alt-route-id, if specified. The Element Management System (EMS) provisions the CA ID field based on the Trunk Group table.
Step 7	add route_guide id=80034; policy_type=ROUTE; policy_id=ivr_rte1;	Add route guide. The Route Guide (route-guide) table holds routing information based on policy-type.

Step	Command	Purpose
Step 8	<code>add ca_config type=default-ms-route-guide-id;datatype=STRING;value=80034</code>	Add Call Agent Configuration (ca_config) table. The Call Agent Configuration (ca-config) table defines the values you can change. The CA Configuration Base defines defaults for each CA (unless you update the table with a different value).
Step 9	<code>change conference_tg_profile id=conf-ipunity;local_trunk_selection=y;</code>	Change conference_tg_profile table. Change local trunk selection to Y in the conference_tg_profile table. When the local_trunk_selection is Y, trunk selection is done locally by CA.
Step 10	<code>control trunk_grp id=80034;mode=FORCED;target_state=ins</code>	Change the target state of the trunk group to INS.
Step 11	<code>control trunk_termination tgn_id=80034;mode=FORCED;target_state=OOS;cic=all;</code>	Force the trunk termination to target state OOS.
Step 12	<code>unequip trunk_termination tgn_id=80034;cic=all;</code>	Unequip the trunk termination.
Step 13	<code>equip trunk_termination tgn_id=80034;cic=all;</code>	Equip trunk termination.
Step 14	<code>control trunk_termination tgn_id=80034;mode=FORCED;target_state=ins;cic=all;</code>	Force the trunk termination to target state INS.
Step 15	<code>change conference_tg_profile id=conf-ipunity;local_trunk_selection=n;</code>	Change the local_trunk_selection token to N.

Managing the H.248 Line-Side Access Control Feature

This section provides information that helps you manage the H.248 Line-Side Access Control feature, including

- [Billing Fields, page 15](#)
- [H.248 Measurement Summary, page 16](#)
- [H.248 Measurement Summary, page 16](#)
- [Events and Alarms, page 18](#)

Billing Fields

These new fields are added in call detail record (CDR) for the H.248 Line-Side Access Control feature:

Field Number	Common Name	Field Type	Field Size	Potential Values	Data Source	Field Description
269	Originating party's codec description	String	64	Alpha numeric characters	QoS table	Populates when CODEC_TYPE=CODEC_STRING in CDR. This field indicates the negotiated codec used by the originating endpoint. Note that CODEC-STRING is a new codec type introduced for the H.248 Line-Side Access Control feature.
270	Terminating party's codec description	String	64	Alpha numeric characters	QoS table	Populates when CODEC_TYPE=CODEC_STRING in CDR. This field indicates the negotiated codec used by the terminating endpoint. Note that CODEC-STRING is a new codec type introduced for the H.248 Line-Side Access Control feature.
274	Conference Trunk Group Number	Numeric		32-bit unsigned value	TrunkGroup::ID	This field is used to represent the ID of the CONF type trunk group created towards a Media Server. This trunk_grp is selected for creating a conference with the Media Server. If this field contains a NULL value, then no data was captured for this record.
275	Conference Circuit ID	Numeric		16-bit unsigned value	Trunk::ID	This field is used to represent the circuit ID of the outgoing trunk (that belongs to CONF type trunk_grp), towards the Media Server. If this field contains a NULL value, then no data was captured for this record.

H.248 Measurement Summary

This feature generates these measurements that you can use to monitor calling activity on the network:

Measurement	Description (*=rapid count could mean a potential problem in the system)
H248_API_ADD_REQ_STAT	CA sends an ADD command.
H248_API_MODIFY_REQ_STAT	CA sends a MODIFY command.
H248_API_AUDIT_VALUE_REQ_STAT	CA sends an AUDIT-VALUE command.
H248_API_SUBTRACT_REQ_STAT	CA sends a subtract command.
H248_API_SVC_CHNG_REQ_STAT	CA sends SERVICE-CHANGE command.
H248_API_SVC_CHNG_RESP_STAT	CA sends the SERVICE-CHANGE response.
H248_API_NOTIFY_RESP_STAT	CA sends the NOTIFY response.
H248_API_SVC_CHNG_IND_STAT	CA receives/sends a SERVICE-CHANGE command from peer.
H248_API_NOTIFY_IND_STAT	CA receives a NOTIFY command from peer.
H248_API_ADD_CONFM_STAT	CA receives an ACK for ADD command.
H248_API_MODIFY_CONFM_STAT	CA receives an ACK for MODIFY command.
H248_API_AUDIT_VALUE_CONFM_STAT	CA receives an ACK for AUDIT-VALUE command.
H248_API_SUBTRACT_CONFM_STAT	CA receives an ACK for SUBSTRACT command.
H248_API_SVC_CHNG_CONFM_STAT	CA receives an ACK for SERVICE-CHANGE command.
H248_API_MGC_CREATE_ASSOC_REQ_STAT	CA creates an association.
H248_API_DEL_ASSOC_REQ_STAT	CA deletes an association.
H248_TXNS_REQ_SENT_OUTSTNDG_STAT	Status contains the number of transaction requests sent whose response has not been received from peer.
H248_TXNS_IND_RCVD_OUTSTNDG_STAT	Status contains the number of transaction indications received whose response has not been received from application.
H248_OC_SETUP_REJECTED	Call setup rejected in High Congestion level
H248_TPT_SWITCH_OVER_STAT	Network association is modified.
H248_VERSION_REQUIRED_STAT	Stack not receiving the negotiated version in the change association request.
H248_PROTOCOL_ERROR_ERR_STAT	Stack encounters protocol specification violation and generates protocol error.
H248_UNAUTHORIZED_STAT	MGC stack receives command indication or confirmation that is in Set Up in Progress state.
H248_INV_SVC_METHOD_IN_CUR_STATE_STAT	Service Change method received by stack is not a valid method in the current state.
H248_SEND_TO_PEER_FAILED_ERR_STAT	Stack fails to send the data to the peer.
H248_SEND_TO_SU_FAILED_ERR_STAT	Stack fails to send the data to application. This should be incremented when H248_SEND_TO_SME_FAILED_ERR_STAT is received from stack.
H248_TXN_IDS_EXHAUSTED_STAT	Transaction IDs not available to be allocated.

Call Processing Counters for H.248

Measurement	Description (*= rapid count could mean a potential problem in the system)
CALLP_H248_CALL_SUCC	Number of successful H.248 calls.
CALLP_H248_CALL_ABAND	Number of abandoned H.248 calls.
CALLP_H248_ORIG_ATTMP	Number of H.248 originated calls.
CALLP_H248_TERM_ATTMP	Number of H.248 terminated calls.
CALLP_H248_ORIG_FAIL	Number of H.248 originated failed calls.
CALLP_H248_TERM_FAIL	Number of H.248 terminated failed calls.
CALLP_H248_H248_CALL	Number of H.248 to H248 calls.
CALLP_H248_SIP_CALL	Number of H.248 to SIP calls.
CALLP_SIP_H248_CALL	Number of SIP to H.248 calls.

Events and Alarms

The system generates the following events and alarms when there are important messages or potential problems related to the H.248 Line-Side Access Control feature:

[Table 1](#) lists the new alarm introduced in this feature.

Table 1 **New Alarm for H.248**

TYPE and NUMBER	INFO/EVENT
SIGNALING(182)	Gateway switchover

[Table 2](#) provides details of the SIGNALING (182) alarm:

Table 2 **Signaling (182) Details**

Description	Gateway switch over
Severity	Information
Threshold	100
Throttle	0
Datawords	MGW Name - STRING [32] MGW TSAP Address - STRING [256]
Primary Cause	Gateway failover or gateway has been administratively switched over.
Primary Action	None
Secondary cause	None
Secondary Action	None

The Gateway Switchover event functions as an informational alert that a gateway failover has occurred or a gateway has been administratively switched over.

Other alarms generated for this feature are:

TYPE and NUMBER	INFO/EVENT
SIGNALING(151)	Subscriber Line Faulty
SIGNALING(152)	Termination Transient Error Received
SIGNALING(170)	Residential Gateway Endpoints are out of Service at the Gateway (Residential Gateway Endpoints are out of Service at the GW)
SIGNALING(171)	Residential Gateway Unreachable
SYSTEM (3)	Inter-Process Communication Message Allocate Failure (IPC Message Allocate Failure)
SYSTEM (9)	Timer Start Failure
DATABASE(18)	Unexpected Runtime Data Interaction
MAINT(74)	Local Domain Name System Service not Responsive (Local DNS Service not Responsive)
SIGNALING(7)	Socket Failure
SIGNALING(79)	Trunking Gateway Unreachable
SIGNALING(80)	Out of Bounds, Memory/Socket Error
SIGNALING(81)	Insufficient Heap Memory
SIGNALING(85)	Initialization Failure
SIGNALING(141)	Address not Resolved by Domain Name System Server (Address not Resolved by DNS Server)

Additional References

Related Documents

Related Topic	Document Title
Reference listing of all CLI tables and tokens	Cisco BTS 10200 Softswitch CLI Database

Additional References

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