



Release Notes for the Cisco PGW 2200 Softswitch Release 9.8(1)

Revised: December 3, 2009

The Cisco PGW 2200 Softswitch 9.8(1) release provides new features and significant performance improvements. These release notes describe the features and caveats for release 9.8(1).

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Introduction

The Cisco PGW 2200 Softswitch is a next generation carrier-grade class 4 (transit) softswitch that has been deployed by over 600 service providers and enterprises.

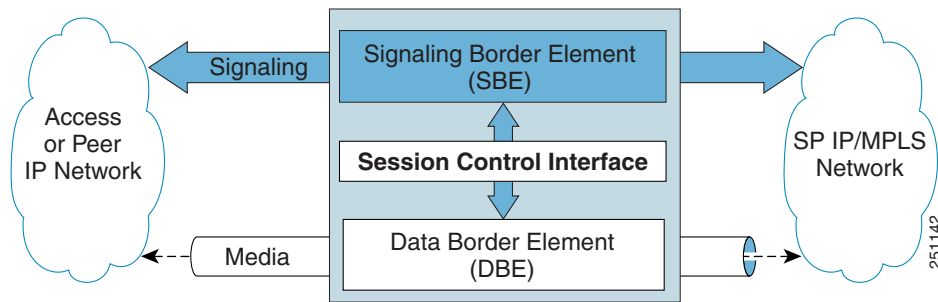
The Cisco PGW 2200 Softswitch Release 9.8(1) expands current softswitch capabilities and introduces signaling path border element (SBE) into its feature portfolio. The session border controller (SBC) was introduced to replace the back-to-back media gateway pairs and allow native IP interconnects between



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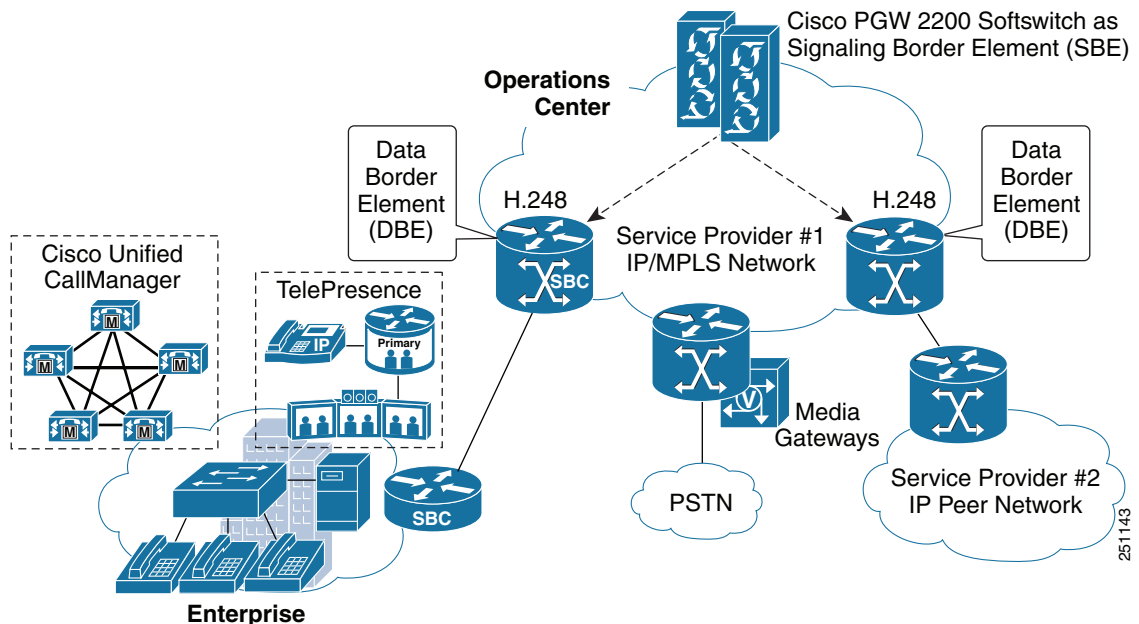
VoIP networks. SBC functions can be broadly divided into two logical subelements: signaling path border element (SBE) and data path border element (DBE). The SBE provides signaling functions such as protocol interworking (for example, H.323 to SIP), identity and topology hiding, and CAC. The DBE provides media-related functions such as deep packet inspection and modification, media relay, and firewall support under SBE control. To date, the SBE and DBE logical elements have generally been realized within a single, physical SBC device. This model is referred to as unified SBC as show in [Figure 1](#).

Figure 1 *The Unified SBC Model*



However, many carriers are finding that as their voice networks grow, the challenges of managing the networks grow proportionately. Service providers today want the option to decouple SBC data-path functions from signaling functions. They want to be able to distribute SBE functions in the network separately from the DBE element to simplify management, operations, and troubleshooting. In this distributed model, communication between the SBE and DBE takes place over a well-defined standard, such as ITU-T H.248 adopted in IMS, which allows a multiplatform implementation of the SBE and DBE elements in the network. The distributed approach to SBCs is in alignment with the directional approach of IMS, ITU, and TISPAN architectures where the SBE functionality can be provided by a variety of different elements and applications in the network see [Figure 2](#).

Figure 2 *Distributing the SBE and DBE Functions of Session Border Control*



A flexible network component with integrated SBC supports both the unified and the distributed model. Networks continually grow and evolve, and a multimedia IP transport network that scales adequately today with a unified SBC will likely outgrow the unified model and necessitate a distributed approach. Operators want SBCs that can grow with their networks—they do not want to make capital-intensive complete equipment upgrades of in-service network elements. The Release 9.8 can cater to such market requirements, behaving as the centralized SBE and interworking with Cisco and potentially non-Cisco DBE via standard H.248 interfaces. The benefits of such architecture consists of:

- Centralized dial plan and optimal routing on the Cisco PGW 2200 Softswitch SBE vs. a distributed and sometimes incomplete dial plan in each unified SBC.
- Carrier grade and standard based billing on the Cisco PGW 2200 Softswitch SBE vs. billing records generated on each unified SBC.
- Simultaneous support of both VoIP network and SS7/PSTN network with ITU-T/ANSI Intelligent Network (IN) capabilities vs. unified SBC is designed only for a pure VoIP network.
- Simplified and economic DBE close to customer edge network thus possible Capital and Operating Expenditure (Capex/Opex) saving.

Platform Support

For a list of supported platforms see the following documents:

- [Cisco PGW 2200 Softswitch Hardware Installation Guide—Releases 7 & 9](#)
- [Cisco PGW 2200 Softswitch Release 9.8 Software Installation and Configuration Guide](#)

Software Required

For a list of software requirements, see Chapter 1 of the *Cisco PGW 2200 Softswitch Release 9.8 Software Installation and Configuration Guide* at the following url:

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/tsd_products_support_series_home.html



Caution

The Cisco PGW 2200 Softswitch and HSI should be installed on dedicated platforms and should not reside with any other applications (SMTP, DNS, HTTP daemons, etc). The Cisco PGW 2200 Softswitch and HSI cannot reside on the same platform.

Cisco PGW 2200 Softswitch Software Compatibility Matrix

Table 1 Cisco PGW 2200 Softswitch Software Compatibility Matrix

Component Type	Role	Hardware	Software Required
Cisco PGW Node	Call control	Cisco PGW 2200 Softswitch	Cisco PGW 2200 Softswitch Release 9.8(1)
		HSI (H.323)	Release 4.3(2), with latest patch
IP Transfer Point LinkExtender (SLT)		Cisco 2811 ITP-L, Cisco 2651 ITP-L	Cisco IOS Version 12.4(15)SW

Table 1 Cisco PGW 2200 Softswitch Software Compatibility Matrix (continued)

Component Type	Role	Hardware	Software Required
Integrated IP Transfer Point LinkExtender (SLT)		Cisco AS5400 Integrated ITP-L	Cisco IOS Version 12.4(7e)
Ethernet Switch/Router		Cisco Catalyst 2900XL	Current Release
		Cisco Catalyst 5500	Current Release
		Cisco Catalyst 6500	Current Release
Cisco CallManager	IP PBX and key switch	Cisco Unified CallManager	Version 6.0.1, Version 5.1.2, Version 4.2
Cisco CallManager Express (CME)		Cisco call manager express	Cisco IOS version 12.4(19)
Cisco Unity		Cisco Unity	Version 4.0
Cisco Unified Border Element (CUBE)		Cisco 2811	Cisco IOS Version 12.4(15)SW
Cisco Unified Intelligent Contact Management (ICM)		Cisco IPCC ICM	Version 7.2
IP transfer point		Cisco ITP 2651 Cisco ITP 2811 Cisco ITP 76xx	Cisco IOS Version 12.4(15)SW Cisco IOS Version 12.4(15)SW Cisco IOS Version 12.2
Media Gateways (MGCP-controlled for PSTN trunking)		Cisco AS5350XM	Cisco IOS Version 12.4(7)SW
		Cisco AS5400XM	Cisco IOS Version 12.4(19)SW
		Cisco AS5850	Cisco IOS Version 12.4
		Cisco AS5850 with STM1 module	Cisco IOS Version 12.4
		Cisco MGX 8880 Media Gateway (VISM)	VISM 3.3.xx
		Cisco MGX 8880 Media Gateway (Cisco VXSM)	VXSM 5.4
Media Gateways (MGCP-controlled for PBX access)		Cisco 2651XM, Cisco 36xx, Cisco 37xx	Cisco IOS Version 12.4(19)
		BRI backhaul: Cisco 1721, Cisco 1751, Cisco 1751v, Cisco 1761, Cisco 1761v 2612	Cisco IOS Version 12.4(19)
		PRI/Q.931 backhaul for call agents: Cisco 2691	Cisco IOS Version 12.3(7)T1
Media Gateways (Megaco-controlled for IP-IP gateway)		Cisco GSR 12K SBC	Version 3.7.0
		Cisco 7600 SBC	Version 3.0.0 Version 3.0.1
		Cisco ASR 1000 Series SBC	Cisco IOS 12.2(33)XNA

Table 1 Cisco PGW 2200 Softswitch Software Compatibility Matrix (continued)

Component Type	Role	Hardware	Software Required
		Cisco MGX 8880 Media Gateway (Cisco VXSM)	VXSM 5.5
Firewall		Cisco PIX 515, 525, or 535 Security Appliance	Cisco PIX Security Appliance Version 7.0
Network Management		Cisco Billing and Measurement Server (BAMS)	Version 3.30 with latest patch
		Cisco MGC Node Manager (MNM)	Version 2.8(1). For correlation of the MNM patches with the Cisco PGW 2200 Softswitch patches, see http://www.cisco.com/en/US/docs/net_mgmt/mnm/2.8.1/release/notes/CMNM_rn.html
		Cisco VSPT	Version 2.8(1). For correlation of the VSPT patches with the Cisco PGW 2200 Softswitch patches, see http://www.cisco.com/en/US/docs/net_mgmt/vspt/2.8/release/notes/vspt281.html
		Cisco Transport Manager (CTM) for MGX 8880 Media Gateway management	Version 8.0
		CiscoWorks LAN Management Solution (LMS) for IOS and Catalyst devices	Version 2.5.1
Optional Software		Cisco Internetwork Performance Monitor (IPM)	Version 2.3
		Cisco Info Center (CIC)	Version 3.5

Required Swap Space

The Cisco PGW 2200 Softswitch software needs to partition 4 GB of swap space. The Cisco Solaris 10 Operating System Jumpstart Disk used to install the solaris system automatically sets up the swap space. Setting swap space at installation is recommended; however, you can change swap space at a later date by adding a swap file or repartitioning the swap space using the format menu (for example, reassigning how many cylinders are in each partition). The swap space requirement is determined by the amount of traffic. As traffic increases, use the MML **rtrv-ne-health** command to observe the amount of swap space that is being used; you can then decide to increase the swap space if more is needed.



Note

Solaris uses swap as a file system cache in addition to virtual memory paging. It is normal to observe both physical and virtual memory completely consumed on Solaris. It is better to monitor usage with `vmstat -p` and `vmstat -p 1` along with `iostat -xtc`. For more information about Verifying Available Virtual Memory, see Chapter 3 of the *Cisco PGW 2200 Softswitch Operations, Maintenance, and Troubleshooting Guide*.

Host Hardware Requirements

Host Minimum Server Requirements

See the *Cisco PGW 2200 Softswitch Hardware Installation Guide—Releases 7 & 9* for the host minimum hardware requirements. Before using the minimum hardware configuration, consult with your Cisco representative to determine the hardware that will give you the best performance results based on your network configuration, proposed traffic, and desired processing power.

Media Gateway Hardware Requirements

Table 2 lists urls for release notes that document media gateways.

Table 2 Media Gateway Release Notes Locations

Media Gateway Release Notes	Release Notes Location
MGX8880 Voice Interworking Service Module (VXSM)	http://www.cisco.com/en/US/products/hw/gatecont/ps3869/prod_release_notes_list.html
MGX8000 Voice Gateway (VISM)	http://www.cisco.com/en/US/products/hw/gatecont/ps3869/prod_release_notes_list.html
AS5350 Universal Gateway	http://www.cisco.com/en/US/docs/ios/12_1/12_1xq/release/notes/rn5350xq.html
AS5400 Universal Gateway	http://www.cisco.com/en/US/docs/ios/12_1/12_1xd/release/notes/rn5400xd.html
AS5850 Universal Gateway	http://www.cisco.com/en/US/docs/ios/12_1/12_1xv/release/notes/rn5850xv.html

Local Area Network Switch

Your application might use one or more local area network (LAN) switches from the Cisco Catalyst Switch family to connect the Cisco PGW 2200 Softswitch host to the MGWs and to the Cisco SLTs or ITPs.



Note

User documentation refers to the Cisco Catalyst 5500 switch family (NEBS-compliant). The Cisco Catalyst 2900 XL is another NEBS-compliant LAN switch that can be used for a small configuration, but current Cisco PGW 2200 Softswitch user documentation does not address the Cisco Catalyst 2900 XL. See the Cisco Catalyst 2900 XL documentation for information about this switch.



Note

A LAN switch is not provided with the Cisco PGW 2200 Softswitch.

Supported Features

The features listed in [Table 3](#) were inherited from earlier releases of the Cisco PGW 2200 Softswitch software and are still supported in Release 9.8(1).

Table 3 *Supported Features in Release 9.8(1)*

Feature	Purpose
Long-distance service through both indirect and direct access	Replaces the need for traditional TDM equipment.
Support for domestic and international dialing plans	Provides scalable and flexible service.
Support for automatic number identification (ANI) authorization	Adds security and prevents fraudulent use of the network.
Support for toll-free and 8XX numbers through the service control point (SCP)	Allows callers to use the free phone and premium services across the Tandem/Transit network.
Centralized element manager	Provides a method to configure and monitor the network.
ISUP PSTN interconnect with full continuity test (COT) support	Provides verification of the voice path.
Support for ISDN direct-access lines	Allows direct line access to the Cisco PGW 2200 Softswitch.
Support for E-ISUP inter-MGC signaling	Provides scalable and flexible service.
Support for advanced call routing	Provides scalable and flexible service.
Support for MGCP 1.0	Allows the Cisco PGW 2200 Softswitch to control media gateway connections.
Support for carrier-grade quality of service (QoS)	Replaces the need for traditional TDM equipment.
Support for SS7-to-SS7, SS7-to-ISDN, SS7-to-SIP, SS7-to-H.323, ISDN-to-SIP, ISDN-to-H.323, ISDN-to-ISDN, DPNSS-H323, and DPNSS-SS7 call types	Provides scalable and flexible service.
Support for voice-band telephony	Provides scalable and flexible service.
Support for ISDN data calls	Provides scalable and flexible service.
Support for real-time fax relay	Provides scalable and flexible service.
Support for modem passthrough	Provides scalable and flexible service.
Support for Cisco media gateways	Protects investment in Cisco equipment.
Provides a reliable IP link between Cisco PGW 2200 Softswitch and access servers with Reliable User Datagram Protocol (RUDP)	No single point of failure in the connection between media gateways and the Cisco MGC.
Call detail records for PSTN billing	Meets carrier-grade PSTN requirements for moving existing voice revenue streams to the packet environment and for creating new voice service opportunities. Provides a CDR viewer for viewing billing records.

Table 3 Supported Features in Release 9.8(1) (continued)

Feature	Purpose
Facility associated signaling provided by the Cisco SLTs (T1/E1 WIC, optional with SS7)	<ul style="list-style-type: none"> Grooms off the bearer channels and then delivers them to the media gateway. Delivers MTP-3 to the MGC host over IP.
High Availability platform	Established calls are maintained when there is a switchover from the active MGC host to its paired standby host.
Sun Solaris 10	<ul style="list-style-type: none"> Y2K compliant Open computing platform
<ul style="list-style-type: none"> Support for 1500+ destination point codes (DPCs) Support for up to six origination point codes (OPCs) plus 40+ Capability Point Codes Supports 504 PRI D channels 	<ul style="list-style-type: none"> Scales cost-effectively to central office size Flexible and scalable
Quasi-associated or fully associated signaling	Ready for international markets.
Complete continuity check (two-wire and four-wire)	Meets interconnect requirements.
NEBS Level 3 compliant	Telco-ready.
Several simplex or high availability platform options	Cost-effective options.

Cisco PGW 2200 Softswitch Management

Table 4 provides an overview of the management components of the Cisco PGW 2200 Softswitch.

Table 4 Cisco MGC Management Components

Management Component	Description
Cisco Voice Services Provisioning Tool (VSPT)	Cisco Voice Services Provisioning Tool (VSPT) provides an easy-to-use graphical tool to provision the Cisco PGW 2200 Softswitch, certain gateways and the Billing and Measurement Server (BAMS). VSPT can be used to create, copy, modify, and deploy configurations. VSPT 2.8(1) is now included with the Cisco MGC Node Manager 2.8(1) and is no longer available as a download option.
Alarms and SNMP traps	<p>The Cisco PGW 2200 Softswitch supports a comprehensive set of alarms (in accordance with ITU X.733).</p> <ul style="list-style-type: none"> Processing error alarms QoS alarms Equipment alarms Communications alarms Environment alarms <p>You can also configure the system to generate real-time alarms to local or remote terminals. All alarms are written to a log file in an uncompressed format for easy retrieval.</p>

Table 4 Cisco MGC Management Components (continued)

Management Component	Description
Measurements and statistics	<p>You can obtain a variety of usage statistics from the Cisco PGW 2200 Softswitch. The data is recorded real-time and written to a file. You can specify the statistics to be collected and the time intervals for collection and writing to file. Each PEG count record includes:</p> <ul style="list-style-type: none"> • Start time • Duration • Measured value • Category • Element measured
Cisco MGC Node Manager (MNM)	<p>MNM is a management system for VOiP networks, including the Cisco PGW 2200 Softswitch, BAMS, HSI, SLT, and Catalyst switches. MNM contains a map viewer to manage large, evolving networks, an alarm browser, and performance management features. MNM allows individual components to be easily configured and managed.</p>

New Features in This Release

- [Domain-Based Routing, page 9](#)
- [Display Name and Connected Number Interworking, page 10](#)
- [Enhanced Clear Channel Codec Support, page 11](#)
- [Enhanced Video Support, page 11](#)
- [Generic Call Tagging, page 12](#)
- [H.248 Protocol-Phase 2, page 12](#)
- [Licensing Features for the Cisco PGW 2200 Softswitch, page 13](#)
- [Secure Real-time Transport Protocol Support, page 13](#)
- [SIP Profiles, page 13](#)
- [SIP-I Protocol, page 14](#)
- [Support of SIP P-Headers for 3GPP, page 14](#)
- [TCP Transport for SIP Phase II, page 15](#)

Domain-Based Routing

This feature enhances the Cisco PGW 2200 Softswitch analysis and routing functions to allow the Cisco PGW 2200 Softswitch to route calls based on user and domain names. These changes allow the Cisco PGW 2200 Softswitch to simultaneously route calls using E.164 numbers, domain names, user names, or a combination of E.164 and non-E.164 data.

Domain-based routing also introduces domain-based call screening functions and translation tables to map E.164 numbers to domain and user names and vice versa.


Note

For more information, see the *Domain-Based Routing* feature module.

Display Name and Connected Number Interworking

The Display Name and Connected Number Interworking feature introduces a comprehensive structure for handling the parameters associated with the following features for calls between ISUP and SIP endpoints:

- Calling Line Identification Presentation (CLIP)
- Connected Line Identification Presentation (COLP)
- Calling Line Identification Restriction (CLIR)
- Connected Line Identification Restriction (COLR)

These parameters allow the Cisco PGW 2200 Softswitch to support interworking between ISUP and SIP networks for basic call features, call forwarding features, and call transfer feature. Call forwarding feature includes Call Forwarding Unconditional (CFUC), Call Forwarding No Answer (CFNA), and Call Forwarding Busy (CFB).

The Display Name and Connected Number Interworking feature also enables the Cisco PGW 2200 Softswitch to handle display name and number identity interworking between PBX and SIP for basic calls, call forwarding, and call transfer.

CLIP/COLP provides call control and security functions for residential telephone users. In addition, display name is part of the calling line identity (CLI). Using CLI information within networks enhances the existing support for call processing, billing, emergency call handling, customer care, operator assistance services and advanced services.

With this feature, the Cisco PGW 2200 Softswitch can map display name and connected number between SIP and ISUP, and between SIP and QSIG. It also supports the prefix modification for connected number, redirection number, and transferred number.

This feature provides the following benefits:

- The Cisco PGW 2200 Softswitch can transit display name and connected number between SIP, SS7, and QSIG.



Note Only the ISUPv2_GERMAN variant is supported for SS7-related calls in this feature.

- The Cisco PGW 2200 Softswitch enables prefix modification for connected number, redirection number, and transferred number.
- The Cisco PGW 2200 Softswitch enables number modification for the Original Called Number.

This feature has the following limitations:

- This feature is not applicable to the half-call scenario calls, such as Network Consultation Transfer (NCT) scenario and Route Optimization (RO) scenario.
- If the call is transferred under Cisco Unified Communications Manager (CUCM), when the Cisco PGW 2200 Softswitch receives an UPDATE message from the CUCM, it does not know the state of transferred call (Alerting or Answered). ISUP just sends CPG with “call transfer active”.



Note For more information, see the *Display Name and Connected Number Interworking* feature module.

Enhanced Clear Channel Codec Support

The clear channel codec guarantees bit integrity of a digital signal 0 (DS-0) transferred through a gateway. It supports the transporting of nonvoice circuit data sessions through a VoIP network. It enables the VoIP networks to transport data calls.

Before the introduction of this feature, the Cisco PGW 2200 Softswitch supported the clear channel codec for TDM-to-SIP data calls. That is, the Cisco PGW 2200 Softswitch could handle data calls that originated from the TDM side and ended on the Session Initiation Protocol (SIP) side.

The Enhanced Clear Channel Codec Support feature completes clear channel codec support to SIP-to-TDM data calls. Based on incoming SIP messages and user configurations, the Cisco PGW 2200 Softswitch sends certain clear channel codecs to gateways and sets the transmission medium requirement (TMR) value for data calls properly. With this feature, users can make TDM data calls through the SIP network. In addition, users can customize clear channel codecs that media gateways use for data calls.



Note

For more information, see the *Enhanced Clear Channel Codec Support* feature module.

Enhanced Video Support

The Enhanced Video Support feature expands video capabilities on the Cisco PGW 2200 Softswitch. Before the introduction of this feature, the Cisco PGW 2200 Softswitch handled Session Initiation Protocol (SIP) video calls in a basic way. It was not possible to hold or transfer SIP video calls, and you did not have control of media streams for SIP video calls. Working together with data border elements (DBEs) (Cisco ASR 1000 DBE or Cisco 7600 DBE), the Cisco PGW 2200 Softswitch now handles SIP video calls more comprehensively:

- Strong control of audio and video streams—The Cisco PGW 2200 Softswitch anchors audio and video streams on DBEs (such as Cisco ASR 1000 DBE and Cisco 7600 DBE). The Cisco PGW 2200 Softswitch, coworking with DBEs, provides the following functions for audio and video traffic:
 - Virtual private network (VPN) discrimination
 - Topology hiding
 - Gate control
 - Media latching for remote network address translation (NAT) traversal
 - Delayed-offer to early-offer conversion
- Flexibility to control video call admissions—This feature enables you to control video call admissions based on trunk group capabilities or number analysis results.
- Video codec negotiation and selection—You can customize video codec capabilities at three levels to affect the codec selection process.
- Video call hold, call transfer, and conferencing services—This feature allows you to hold or transfer a video call. You can also use video conferencing services on the Cisco PGW 2200 Softswitch.
- Video call fallback to audio calls—If the Cisco PGW 2200 Softswitch cannot handle a video call due to video codec shortages or other reasons, it converts the video call into an audio call.



Note

For more information, see the *Enhanced Video Support* feature module.

Generic Call Tagging

The Generic Call Tagging feature enables a service provider to configure the Cisco PGW 2200 Softswitch to perform additional routing operations beyond the pre-existing manner of route selection. If you apply a generic call tag in Pre-analysis, A-number analysis, or B-number analysis, the Cisco PGW 2200 Softswitch can perform another level of route selection defined by the tag, which extends the route selection algorithms for certain calls. This feature enables you to refine route selection.

When you use the Generic Call Tagging feature, you influence the progression of call route selection:

Dial Plan—You must configure a new dial plan result called `CALL_TAG`, which you can configure to be present for the Pre-analysis, A-number analysis, or B-number analysis stages of routing analysis. The Cisco PGW 2200 Softswitch processes the `CALL_TAG` result type by associating it with a data word, in which you provide a name for a particular tag list.

The identity you specify for a tag list must be an alphanumeric character string (upper/lower case) of a maximum of 32 characters. There is no limit to the number of name/value pairs (or just tags without values) that you can contain in a tag list. If you specify a tag name without a value, the Cisco PGW 2200 Softswitch supplies the default value “true”.

Tag List Table—The Cisco PGW 2200 Softswitch constructs a tag list table with which it can decide whether a particular trunk group can service a call based on the presence of a tag. By constructing a tag list table, you can “blacklist” (or skip) any number of trunk groups from servicing calls that bear particular tags.

Routing Analysis—When the Cisco PGW 2200 Softswitch reaches the point in route analysis at which it must select a trunk group to service a call, it consults the tag list table to find a trunk group that is allowed to service the call.

To implement the Generic Call Tagging feature, you must perform the following procedures.

1. Provision the taglist.
2. Provision tag/value pairs.
3. Create the `CALL_TAG` result type associated with the taglist provisioned in Step 1.
4. Associate a trunk group with the taglist provisioned in Step 1.

The Generic Call Tagging feature enables you to use your own naming conventions to suit your location and purposes. The primary intent is to associate tags with particular trunk groups. This enables you to designate the trunk groups over which you wish to route certain calls. You can associate a tag with a trunk group to prevent the trunk group from routing a call that requires handling defined by the tag. This effectively blacklists the trunk group from routing calls of a designated type. For example, you could prevent some trunk groups from routing a call that requires fax transmission.



Note

For more information, see the *Generic Call Tagging* feature module.

H.248 Protocol-Phase 2

H.248 Protocol-Phase 2 enables the Cisco PGW 2200 Softswitch to perform media anchoring on ingress or egress border gateways for IP traffic. This feature includes a simple service policy decision module (SPDM), which determines whether a session border element (SBE) should perform media anchoring

and, if so, identifies which border gateway will perform the media anchoring based on service requirements. The border gateway control interface conforms to the ITU-SG16/IETF specification of the H.248 protocol and an additional optional package.

H.248–Phase 2 gives the Cisco PGW 2200 Softswitch the capacity to anchor media on ingress or egress border gateways for IP traffic, no matter whether a call is TDM to IP, IP to TDM, or IP to IP. With H.248–Phase 2, the Session Border Element (SBE) engine can select border gateways in gateway pools, and, through the use of H.248, instruct these border gateways to anchor the Realtime Transport Protocol (RTP)/Real Time Conferencing Protocol (RTCP) media streams.

**Note**

For more information, see the *H.248 Protocol - Phase 2* feature module.

Licensing Features for the Cisco PGW 2200 Softswitch

The Cisco PGW 2200 Softswitch release 9.8(1) introduces licensing control for TimesTen in-memory database and the Session Border Element (SBE) interface or IP-IP Gateway. The TimesTen license keeps track of the Number Portability and Full Number Translations. The SBE interface license is needed when Cisco PGW 2200 Softswitch is used as an SBE in the Cisco Session Border Controller solution.

**Note**

For more information, see the *Licensing Features for the Cisco PGW 2200 Softswitch* feature module.

Secure Real-time Transport Protocol Support

The Secure Real-time Transport Protocol Support feature enables the Cisco PGW 2200 Softswitch to handle MGCP-based TDM and SIP calls that have media authentication and encryption of the Secure Real-time Transport Protocol (SRTP). This feature adds security to media traffic in your network. The Cisco PGW 2200 Softswitch can fall back from SRTP to non-secure Real-time Transport Protocol (RTP).

**Note**

MGCP-based TDM calls are calls that originate from or terminate on MGCP-based TDM trunks. SIP calls are calls that originate from or terminate on SIP trunks.

**Note**

For more information, see the *Secure Real-time Transport Protocol Support* feature module.

SIP Profiles

This feature introduces new service profiles for SIP, EISUP, and other protocols. Service profiles improve provisioning and security for the Cisco PGW 2200 Softswitch by allowing you to create a customized set of call properties and assign it to a call trunk group.

This feature includes four new profile types:

- SIP profiles—Profiles for SIP trunk groups.
- EISUP profiles—Profiles for EISUP trunk groups.
- Domain profiles—Profiles based upon a domain name. Domain profiles are for SIP interfaces only.

- Common profiles—A general profile type that can handle SIP and EISUP trunk groups as well as properties from other protocols. SIP and EISUP profiles can contain references to a common profile.

**Note**

For more information, see the *SIP Profiles* feature module.

SIP-I Protocol

This feature, SIP-I (SIP with encapsulated ISUP), is an ITU-defined SIP extension which allows IP networks to provide services that are supported by ISUP networks, for example, malicious call identification. The feature allows the Cisco PGW 2200 Softswitch to interwork between SIP-I and ISUP, and also to interwork between SIP-I and other protocols such as SIP, H.323, PRI, and QSIG. Where PSTN services are required in IP networks, SIP trunks with SIP-I support can be the preferred method for supplying these services, because the ISUP content is encapsulated in SIP message headers.

The Cisco PGW 2200 Softswitch supports ITU, ANSI, German, UK, Finnish ISUP, and Russian (CSCsv88752) encapsulated in SIP-I messages, which allows a high degree of interworking for many services across a SIP-I configured link. You can provision the closest base or the closest country-specific SIP-I variant if you are using SIP-I for other ISUP variants. The service interoperability level between SIP-I and other protocols such as SIP, H.323, PRI, and QSIG, is lower than the interoperability level between SIP-I and ISUP, but is nearly equivalent to the interoperability level between those protocols and ISUP today.

The SIP-I Protocol feature is useful in a next-generation network (NGN) emulation model, where the Cisco PGW 2200 Softswitch, working with the Cisco BTS 10200 Softswitch in a SIP solution, communicates with other NGNs using SIP-I. This new feature is also useful for bridging existing PSTN networks without TDM interconnections being required.

Russian SIP-I support was added in CSCsv88752.

**Note**

For more information, see the *SIP-I Protocol* feature module.

Support of SIP P-Headers for 3GPP

The Support of SIP P-Headers for 3GPP feature extends handling capabilities of SIP P-headers on the Cisco PGW 2200 Softswitch. The Cisco PGW 2200 Softswitch supports three more SIP P-headers for Third Generation Partnership Project (3GPP):

- P-Charging-Function-Addresses
- P-Charging-Vector
- P-Access-Network-Info

This feature enables service providers to correlate charging and access network information across multiple entities within a user-defined trusted zone. Service providers can use these two types of information saved as call detailed records (CDRs) for further analysis and actions.

In a typical deployment, the Cisco PGW 2200 Softswitch interworks voice services between two IP Multimedia Subsystem (IMS) core networks. It also interworks voice service among PSTN networks and IMS core networks. Each Cisco PGW 2200 Softswitch pair functions as a Breakout Gateway Control Function (BGCF) server or a Media Gateway Controller Function (MGCF) server.

This feature provides the following benefits:

- Service providers can be aware of the type of access network that the call arrived from (for example, cell site identifier) and store these records.
- Service providers can match records from SIP devices (for example, proxies, softswitches, and application servers) for improved CDR or billing purposes.
- Service providers can supply to SIP devices (for example, proxies, softswitches, and application servers) in their network the IP address of the billing entity for a subscriber so that the subscriber is billed accordingly.

The Support of SIP P-Headers for 3GPP feature has the following restrictions and limitations:

- The Cisco PGW 2200 Softswitch supports the three SIP P-headers in SIP messages for session establishment only. These messages are
 - SIP messages: INVITE, 180 Ringing, 181 Call Is Being Forwarded, 183 Session Progress, and 200 OK
 - EISUP messages: initial address message (IAM), call progress message (CPG), address complete message (ACM), answer message (ANM), and connect message (CON)
- The Cisco PGW 2200 Softswitch does not support the three SIP P-headers for mid-call services: call hold, call resume, and call transfers.



Note

For more information, see the *Support of SIP P-Headers for 3GPP* feature module.

TCP Transport for SIP Phase II

The TCP Transport for SIP Phase I feature introduced support for multiple transport protocols on the PGW 2200 Softswitch in Release 9.7(3). This feature extends the benefits of TCP Transport for SIP Phase I by adding more flexible configuration options for the UDP and TCP transport protocols.

This feature provides the following benefits:

- A dynamic mode that provides simultaneous support for TCP and UDP
- Improved compatibility with RFC 3263, 3261, 2915, and 2782
- Support for switching between TCP and UDP during a session
- Support for calls that utilize a different transport protocol in each call leg
- Support for DNS-based selection of a call's transport protocol and destination address



Note

For more information, see the *TCP Transport for SIP Phase II* feature module.

Installation Notes

This section contains information and procedures you can use to remove, upgrade, or install the Cisco PGW 2200 Softswitch software. It also contains information about software patches.

Acquiring the Software

The Cisco PGW 2200 Softswitch software is provided to users on CD. Before installing the software, check the solution release notes and the web for the most current patch level. If the information on the CD matches the information provided on the web and in the solution release notes, you can install the software and patches directly from the CD.

If the web information is more current, complete the following procedure to obtain software patches from Cisco.com.

Release 9.8(1) Patch 4 and Earlier

Software files for Patch 4 and earlier are located in the following directories.


Note

You must be logged into www.cisco.com to see these patches.

Media Gateway Controller 9.8(1) Sparc Version:

<http://www.cisco.com/cgi-bin/tablebuild.pl/mgc-981-sparc>

Media Gateway Controller 9.8(1) Opteron Version:

<http://www.cisco.com/cgi-bin/tablebuild.pl/mgc-981-opteron>

Release 9.8(1) Patch 5 and Later

Use the following procedure to locate the software files for Patch 5 and later.

-
- Step 1** From the Cisco.com page, select the Download Software link (located under Support). The Download Software page displays.
- Step 2** From the Software Center page, select the Voice and Unified Communications link. A login box displays.
- Step 3** Enter your Cisco.com user name and password and press **OK**. After authentication, a list of Voice and Unified Communications products displays.
- Step 4** Select links in the following sequence:
- IP Telephony
 - Call Control
 - Cisco PGW 2200 Softswitch
 - Cisco PGW 2200 Software Version 9
- Step 5** Select the links for the desired software release.
- Step 6** Download the latest patch file, `patch981sparc.sh` or `patch981opteron.sh`.

**Caution**

Be sure that you download the *latest* patch file, patch981sparc.sh or patch981opteron.sh. If you do not download the *latest* patch, your system might lose data from the TimesTen database during the patch upgrade.

Installing and Upgrading the Software

Read all the notices and statements in this section.

Important Notices and Statements

**Note**

If you are installing software Release 9.8(1) for the first time, see the *Cisco PGW 2200 Softswitch Release 9.8 Installation and Configuration Guide* for instructions.

**Note**

In the *Cisco PGW 2200 Softswitch Software Release 9.8 Installation and Configuration Guide*, observe the following change: In the “Configuring SNMP Support Resources” sections, SNMP MIB measurements are valid only on the active node. They are *not* replicated to the standby node.

**Caution**

Before upgrading from a current version of Software Release 9 to a higher level, you must verify software release version compatibility by contacting Cisco TAC (see [Obtaining Documentation and Submitting a Service Request, page 33](#)) or your Cisco account representative. Software release version incompatibility may cause service disruption.

**Caution**

When upgrading a redundant system, verify that the pom.dataSync parameter (located in /opt/CiscoMGC/etc/XECfgParm.dat) is set to **false** to maintain calls and preserve your configuration.

**Caution**

No validation is performed on the IDs you enter. If you enter an invalid ID, the utilities package does not add any accounts.

**Tip**

If you have trouble installing the utilities package, make sure that you do not have a transpath group in your group file (located in /etc).

Additional Cautions and Notes for Patch 5 and Later

All of the cautions and notes in this section apply to Patch 5 and later.



Caution

Be sure that you have downloaded the *latest* patch file, `patch981sparc.sh` or `patch981opteron.sh`, as described in the “[Release 9.8\(1\) Patch 5 and Later](#)” section on page 16. If you have not downloaded the *latest* patch, your system might lose data from the TimesTen database during the patch upgrade.



Caution

You must delete TimesTen replications between the active and standby Cisco PGW 2200 Softswitch pair before the upgrade. During the patch upgrade and downgrade period, ensure that you do not enable operation of the data replicator and TimesTen replicator. After the upgrade, restore the TimesTen replicator on the active and standby pair of the Cisco PGW 2200 Softswitch. For instructions on how to disable and restore the replicator, see the [Cisco PGW 2200 Softswitch Release 9.8 Software Installation and Configuration Guide](#).



Caution

Be sure to use `./backupDb.sh ttbackup.tar` to back up the TimesTen database before you start the upgrade. If you do not back up the database, and your system experiences a database problem during the upgrade, you will have no way to restore any lost data.



Note

Before the upgrade, start the TimesTen daemon. If the TimesTen daemon is not running, use the command `/etc/init.d/tt start` with the root privilege. For instructions on how to start and stop the TimesTen daemon, see the [Cisco PGW 2200 Softswitch Release 9.8 Software Installation and Configuration Guide](#).

Using the Patch Upgrade Procedure

To install software patches, use the procedure provided in the technical note [Patch Upgrade Procedure for Cisco PGW 2200 Softswitch Release 9.6 and Later](#).

The protocol packaging has been improved so that you need only load and install protocols that you require. Previously, the entire protocol suite was packaged and delivered as a unit. With the improved packaging protocol:

- The standard installation script allows you to specify which protocol set(s) are required on your platform.
- Only packages containing the desired protocols are installed as part of the standard installation.

The same number of packages available with the initial release still exists; however, they have a new nomenclature that is required for support of patching later in the release life cycle. You have the option to install only the packages containing required protocols.

The protocol packages are labeled CSCOnnvvv:

- nn—Indicates the specific protocols you need for your environment
- vvv—Indicates the version level of the patch

For example, at the time of the release you are given protocol patch CSCO01000.pkg. The 01 indicates a specific protocol applicable to your environment; 000 indicates the revision level. The next time a set of protocol patches is built, the 000 is incremented by 1 (001).

**Caution**

Be sure that you have downloaded the *latest* patch file, patch981sparc.sh or patch981opteron.sh, as described in the “[Release 9.8\(1\) Patch 5 and Later](#)” section on page 16. If you have not downloaded the *latest* patch, your system might lose data from the TimesTen database during the patch upgrade.

**Note**

If you encounter issues with PGW operation, please ensure that the latest patch version is installed before trying to obtain technical support.

**Note**

You must always install the 00 protocol package when upgrading a protocol patch level. If the 00 protocol package is not installed, the upgrade attempt fails. The Protocol File Missing alarm displays.

Be sure that you have downloaded the latest patch file as explained in the “[Release 9.8\(1\) Patch 5 and Later](#)” section on page 16. Navigate to the /opt/SW/SxxPxx directory (for example, /opt/SW/S5P5), and copy the packages you want to apply into your local directory (/opt/SW/SxxPxx) for installation.

The installation script requires one of the following options:

- Option 1—**patch status** gives you an output showing which protocol patches are installed on the system. The installed protocol packages are required (must be downloaded) for you to update the software. The exception is if you need a new protocol that was not previously delivered. In this case, you need to download an extra package (the package that the new protocol is delivered in). This option should be run before the current patches are removed from the system.
- Option 2—**patch all** automatically searches the current directory, /opt/SW/SxxPxx (for example, /opt/SW/S5P5), and the installed system to determine the most recent available patch, and automatically updates the system with that patch. This applies to protocol and system patches. All uninstall and install activities are handled by the script. The command for this is patch all. The patch all command does not require a second argument.
- Option 3—**patch system [latest |<alternate patch number>]** specifies the exact patch level for system patches you choose to install on the system. You can specify that any available patch level be installed. All uninstall and install activities are handled by this script. This option requires one of the following arguments:
 - latest—Installs the most recently downloaded patch. This argument should be used with the system and protocol commands used in options 3 and 4.
 - <number>—Indicates the patch number <vvv> that you want to install. This argument should be used with the system and protocol commands used in options 3 and 4.
- Option 4—**patch protocol [latest |<alternate patch number>]** specifies the exact patch level for protocol patches you choose to install on the system. You can specify that any available patch level be installed. All uninstall and install activities are handled by this script. This option requires one of the following arguments:
 - latest—Installs the most recently downloaded patch. This argument should be used with the system and protocol commands used in options 3 and 4.
 - <number>—Indicates the patch number <vvv> that you want to install. This argument should be used with the system and protocol commands used in options 3 and 4.

The following is sample output of option 2, **patch all**, which automatically searches the current directory and the installed system to determine the most recent available patch located in /opt/SW/SxxPxx, for example, /opt/SW/S5P5 (protocol and system), and automatically updates the system with that patch level:

```
bash-3.00# ./patch all
```

Note:

From Release 9.8(1), PGW may change TimesTen database schema during patch application, please make sure

- (1) TimesTen database has been backed up before applying the patch
- (2) TimesTen replication has been stopped before applying the patch
- (3) TimesTen daemon keeps running during patch application

Have these preconditions all been met? [y] [y,n,?,q] y

The following patches are about to be removed from your system:

```
CSC000004
CSC001004
CSC002004
CSC010004
CSC020004
CSC030004
CSC031004
CSC032004
CSC033004
CSC040004
CSC041004
CSC042004
CSC050004
CSC060004
CSC070004
CSC071004
CSC080004
CSC0gs004
```

The following patch(es) are about to be added to your system from the local directory:

```
CSC000005.pkg
CSC001005.pkg
CSC002005.pkg
CSC010005.pkg
CSC020005.pkg
CSC030005.pkg
CSC031005.pkg
CSC032005.pkg
CSC033005.pkg
CSC040005.pkg
CSC041005.pkg
CSC042005.pkg
CSC050005.pkg
CSC060005.pkg
CSC070005.pkg
CSC071005.pkg
CSC080005.pkg
CSC0gs005.pkg
```

Are you sure this add/remove scenario is correct? [y] [y,n,?,q]

System Level Equivalency

[Table 5](#) provides the system level equivalency for each protocol patch. For example, after you install CSCOnn006, Release 9.8(1) is equivalent to Release 9.7(3) patch level CSCOnn025 (contains all patches and features included in Release 9.7(3) up to patch CSCOnn025).

Table 5 *System Level Equivalencies for Protocol Patches*

Patch Number	System Level Equivalency
CSCOnn007	9.7(3) Patch CSCOnn025
CSCOnn006	9.7(3) Patch CSCOnn025
CSCOnn005	9.7(3) Patch CSCOnn017
CSCOnn004	9.7(3) Patch CSCOnn017
CSCOnn003	9.7(3) Patch CSCOnn017
CSCOnn002	9.7(3) Patch CSCOnn017
CSCOnn001	9.7(3) Patch CSCOnn017

[Table 6](#) provides the system level equivalency for each system patch. For example, after installing CSCOgs006, release 9.8(1) is equivalent to release 9.7(3) patch level CSCOgs025 (contains all patches and features included in release 9.7(3) up to patch CSCOgs025).

Table 6 *System Level Equivalencies for System Patches*

Patch Number	System Level Equivalency
CSCOgs007	9.7(3) Patch CSCOgs025
CSCOgs006	9.7(3) Patch CSCOgs025
CSCOgs005	9.7(3) Patch CSCOgs017
CSCOgs004	9.7(3) Patch CSCOgs017
CSCOgs003	9.7(3) Patch CSCOgs017
CSCOgs002	9.7(3) Patch CSCOgs017
CSCOgs001	9.7(3) Patch CSCOgs017

Patch Test Combinations

[Table 7](#) provides a list of the patch combinations that were used during testing. Use this list to determine which protocol and system patches should be installed before you run the Cisco PGW 2200 Softswitch software. It does not matter which patch (protocol or system) is installed first.

Table 7 *Patch Test Combinations*

Protocol Patch	System Patch
CSCOnn007	CSCOgs007
CSCOnn006	CSCOgs006
CSCOnn005	CSCOgs005

Table 7 Patch Test Combinations (continued)

Protocol Patch	System Patch
CSCOnn004	CSCOgs004
CSCOnn003	CSCOgs003
CSCOnn002	CSCOgs002
CSCOnn001	CSCOgs001

Resolved Caveats Listed by Patch Number

This section lists the caveats resolved in each patch.

CSCOnn007

Patch CSCOnn007 resolves the following caveats:

Identifier	Severity	Component	Description
CSCtc76135	2	mdl-callctrl	PGW will refuse with SIP488 and attempt to switch to T389.8
CSCtb87695	3	mdl-mgcp	Missing fields in the SDP/Origin when PGW is SBE and ASR is DBE
CSCtc87047	3	engine	PGW 9.8(1) SIP to EISUP call is dropped after hold/unhold
CSCta75092	6	enhancement	PGW supports 3GPP P-headers
CSCta77122	6	mdl-sip	Connected Name and Connected Number Interworking

CSCOnn006

Patch CSCOnn006 resolves the following caveats:

Identifier	Severity	Component	Description
CSCtb36490	6	mdl-mgcp	9.8(1) PGW rework to support sRTP with G.Clear from CUCM
CSCtb90673	6	mdl-tools	build spe.pl to bytecode and include update process to compile procedure

CSCOnn005

Patch CSCOnn005 resolves the following caveats:

Identifier	Severity	Component	Description
CSCsz93760	2	mdl-eisup	981S4P4: no voice path h323-sip call transfer PRI
CSCsx98442	3	mdl-lcm	SS7 Hairpin call fail when localannbehavior =2 on 981S3P3
CSCsz38423	3	mdl-cdr	Assign new CDE tags value to 4052/4053 in 9.8(1)
CSCsz83008	3	mdl-sip	SIP to MGCP calls have wrong LCO when CODEC resultset used with SIP-I
CSCsz84269	3	mdl-eisup	981S4P4:H323 hairpin call not work
CSCsz96408	3	mdl-sip	981S4P4: No "+" in PAID when NOA=International for COLP
CSCta41597	3	mdl-lcm	9.8(1) COLR do not have presentation restricted
CSCta43840	3	mdl-cdr	981S4P4: Empty value for CDR Tag 3001
CSCta48842	3	mdl-lcm	981S4P4: PGW treat CCM's SRTP Data Invite as rtp data call
CSCta48885	3	mdl-lcm	981S4P4: t38fax is included in CRCX LCO for SRTP Data Call
CSCta52627	3	mdl-lcm	981S4P4: data codec overwritten by GWdefaultAudioCodec in LCO
CSCta97812	3	engine	PGW will not resume call to ss7 side after hold and midcall
CSCsw79633	6	enhancement	featurette generic tagging
CSCsz81319	6	mdl-cdr	981S4P4:No ingress media info in CDR when making SIP early offer calls
CSCta12784	6	mdl-cdr	IAM_SetupRx_TM and IAM_SetupTx_TM do not record last SAM timestamp

CSCOnn004

Patch CSCOnn004 resolves the following caveats:

Identifier	Severity	Component	Description
CSCsw63159	2	mdl-lcm	9.8(1)MCP_16core:blind transfer call hung when gw reply error
CSCsu21578	6	mdl-callctrl	Support Multi-stream terminations for Telepresence
CSCsx13857	6	mdl-callctrl	Echo cancel doesn't work properly
CSCsx52649	6	mdl-sip	Featurette: SIP SDP mapping to ISUP for TMR/FCI
CSCsx69430	6	mdl-callctrl	Support SRTP and G.Clear enhancement on PGW

CSCOnn003

Patch CSCOnn003 resolves the following caveats:

Identifier	Severity	Component	Description
CSCsx54201	2	mdl-lcm	982S2P2: Start MPM get lost when ACK arrives late.
CSCsv81226	6	mml	9.8(1): make SIP.udp2tcp_byte_xover a trunkgroup(profile) property.
CSCsv88752	6	mdl-callctrl	Russian SIP-I support on PGW.

CSCOnn002

Patch CSCOnn002 resolves the following caveats:

Identifier	Severity	Component	Description
CSCsv09405	3	mdl-sip	981S1P1: No 200 OK to INFO(MPM) during hold service invoked.
CSCsv25958	3	mml	981S1P1: "delayedoffertoearlyofferinterworking" missing in properties.dat.
CSCsv48269	3	mdl-analysis	9.8(1)p1: The service is impacted when the rtrnkgrp parameter is not set.
CSCsv20533	6	mdl-mgcp	Including egress TG vrf information in the originating side IP gateway.

CSCOnn001

Patch CSCOnn001 resolves the following caveats:

Identifier	Severity	Component	Description
CSCsr30557	3	mdl-lcm	9801:Call released when pressing hold for SIP(VXSM) to SIP(DBE) call.
CSCsr36779	3	mdl-lcm	9801:SIP(VXSM) to SIP(VXSM) CFU to H323 one way voice path.
CSCsr93398	3	mdl-sip	9805: Wrong PAID address in Resume INVITE Message.
CSCsr99568	3	mdl-lcm	9805: sip call failed across eisup because message buffer wrong.
CSCsu33220	3	mdl-lcm	981FSP: SIPI(FIN)--ISUP CLI mapping not correct.
CSCsu39426	3	mdl-lcm	981: No response for Multiple INFO(MPM) for SIP--SIPI call.
CSCsu39666	3	mdl-lcm	98(1):SIP/pri Calling Name to Q931+ Display I.E wrong.

Identifier	Severity	Component	Description
CSCsu62209	3	mdl-sip	981: SIP Non-E164 DBR call fail when no PAID header.
CSCsu66990	3	ioccxgcp	981:ss7 call will fail when set EchoCanRequired=1.
CSCsu78892	3	engine	9806: vrfname cannot be loaded for IPIPGW.
CSCsr75375	4	other	Code porting from 9.7 to 9.8 on wenxie part.
CSCsu53687	6	mdl-sip	9.8(1) Sim does not treat header name case insensitive in multipart Mime.

CSCOGs007

Patch CSCOGs007 resolves the following caveats. See the [Patch Test Combinations](#) section of this document to determine which protocol and system patches are needed.

Identifier	Severity	Component	Description
CSCtc86854	3	mml	PROV-DPLY reporting wrong error count
CSCtc89911	3	upgrade	Backup TTDB tables before deleting during patch downgrade
CSCtd39625	3	provision	981S7P7R2:report error when provisioning sipsatellitedindenable
CSCtc96698	4	mml	9.8(1)S7P7R1:mml command numan-add:crptmsg wrong
CSCta75092	6	enhancement	PGW supports 3GPP P-headers

CSCOGs006

Patch CSCOGs006 resolves the following caveats. See the [Patch Test Combinations](#) section of this document to determine which protocol and system patches are needed.

Identifier	Severity	Component	Description
CSCsz63147	2	engine	981S4P4: Engine core dump while dynamic provisioning with high traffic
CSCtb69438	3	iocm	CSipPath provision_Component can't be found error when execute "prov-cpy"
CSCtb90675	3	replicator	9.8(1): Modified the notes for setup replicator

CSCOGs005

Patch CSCOGs005 resolves the following caveats. See the [Patch Test Combinations](#) section of this document to determine which protocol and system patches are needed.

Identifier	Severity	Component	Description
CSCta20203	2	mmdb	981S4P4 engine CoreDump
CSCsw29999	3	design	981S2P2: stop and start pgw will cause h248 iplnk cannot get into IS
CSCsz13590	3	engine	9.8(1)S3:engine core dump when P-Assert-id header contain anomalistic C-
CSCsz38423	3	mdl-cdr	Assign new CDE tags value to 4052/4053 in 9.8(1)
CSCsz38461	3	mml	981S3P3: prov-cpy timeout on sun fire v120
CSCsz52152	3	snmp	981S3P3 Sagt core dump
CSCsz62943	3	ioccsip	981S4P4: PGW only listening one tcp port if configured with MIT from new
CSCta07594	3	toolkit	9.8(1)S4:TV function is not working in 981S4
CSCtb35826	3	mml	Exporting function missing
CSCsw79633	6	enhancement	featurette generic tagging
CSCtb24588	6	measm	9.8(1): PGW enhancement to send CDB 1071 for PRI trunk groups

CSC0gs004

Patch CSC0gs004 resolves the following caveats. See the [Patch Test Combinations](#) section of this document to determine which protocol and system patches are needed.

Identifier	Severity	Component	Description
CSCsx81298	2	iocceisup	981S3P3: eisup coredump when prov-dply
CSCsx71897	3	engine	981: engine memory leak if long time sip to sip call
CSCsy65965	3	ioccsdn13	ISDNBRI does not support Opteron platform
CSCsu21578	6	mdl-callctrl	Support Multi-stream terminations for Telepresence
CSCsx69430	6	mdl-callctrl	Support SRTP and G.Clear enhancement on PGW

CSC0gs003

Patch CSC0gs003 resolves the following caveats. See the [Patch Test Combinations](#) section of this document to determine which protocol and system patches are needed.

Identifier	Severity	Component	Description
CSCsw21968	2	engine	9.8(1)S2:Engine core dump in sip(dbe) to sip call with large CDB.
CSCsv94195	3	alrmm	981: error log was printed in the platform.log after starting PGW.
CSCsv03948	6	enhancement	PGW performance improvement on 16 cores system.

Identifier	Severity	Component	Description
CSCsv81226	6	mml	9.8(1): make SIP.udp2tcp_byte_xover a trunkgroup(profile) property.
CSCsv88752	6	mdl-calletrl	Russian SIP-I support on PGW.
CSCsw79047	6	mdl-sip	9.8(1):Multi-IN-IP Non default port cannot accept OPTIONS.

CSC0gs002

Patch CSC0gs002 resolves the following caveats. See the [Patch Test Combinations](#) section of this document to determine which protocol and system patches are needed.

Identifier	Severity	Component	Description
CSCsv87924	2	mgcp	981S2P2: mgcp core dump happened when running showtime automation scripts.
CSCsu78516	3	toolkit	simWriter does not work on special trace file.
CSCsu81266	3	design	9.8(1):mini_parse.pl cannot find the interpreter.
CSCsu92065	3	pom	981S1P1:pom coredump on Sigtran regression.
CSCsv06053	3	mml	Change “sourcescreenfile” to “sourceblackfile”.
CSCsv11882	3	ioccxgcp	981:pgw send a part of Transaction Acknowledgement ' msg.
CSCsv36054	3	upgrade	98(1): Some potential migration issues 9.8(1).
CSCsv20533	6	mdl-mgcp	Including egress TG vrf information in the originating side IP gateway.

CSC0gs001

Patch CSC0gs001 resolves the following caveats. See the [Patch Test Combinations](#) section of this document to determine which protocol and system patches are needed.

Identifier	Severity	Component	Description
CSCsv06599	2	upgrade	PRI Tariff Table get lost after migration.
CSCsr03936	3	mdl-sip	981B: MDL trc file corrupt w/ MDO when TCC SIP with DNS Query, then 302.
CSCsr99568	3	mdl-lcm	9805: sip call failed across eisup because message buffer wrong.
CSCsu46745	3	snmp	9803: snmpget cannot measurements on Opteron.
CSCsu53537	3	other	9.8(1) a error shows up when config-db.
CSCsu53632	3	toolkit	981 sparc chk_inv fails
CSCsu61896	3	mml	MML batch provision fail while add service and sourceblack at same time.

Identifier	Severity	Component	Description
CSCsu78748	3	other	9.8(1): error shows when setting PermSize by using config-db.
CSCsu78892	3	engine	9806: vrfname cannot be loaded for IPIPgw.
CSCsu99224	3	ioccxgcp	981:iplnk to DBE never goes up when restart pgw.
CSCsu92087	4	engine	Port CSCsu79291 (9.7) to 9.8.
CSCsu61987	6	mml	981: Add attribute "index" of insipheader & outsipheader to config.mml.

Protocols Supported

Table 8 lists the protocols supported by the Cisco PGW 2200 Softswitch. In this table, Switch Type refers to variations in the switch implementation of a particular protocol. Switch Type 0 means that there is no switch-specific implementation.

Table 8 Supported Protocol Variants

Protocol Variant Name	Protocol Family	Switch Type
ANSISS7_2K	SS7-ANSI	0
ANSISS7_92	SS7-ANSI	0
ANSISS7_C2	SS7-ANSI	20
ANSISS7_C3	SS7-ANSI	0
ANSISS7_E1	SS7-ANSI	23
ANSISS7_STANDARD	SS7-ANSI	0
ANSISS7_STANDARD_SIPI	SIP-I	0
ATT_41459	ISDNPRI	17
ATT_41459_C2	ISDNPRI	17
BELL_1268	ISDNPRI	22
BELL_1268_C2	ISDNPRI	22
BTNUP_BTNR167	SS7-UK	5
BTNUP_IUP	SS7-UK	5
DPNSS_BTNR188	DPNSS	26
dummy	AVM	0
dummy	H248	0
dummy	LI	0
dummy	MGCP	0
dummy	RA	0
dummy	SGCP	0
dummy	TCAPOverIP	0
dummy	VSI	0

Table 8 Supported Protocol Variants (continued)

Protocol Variant Name	Protocol Family	Switch Type
EISUP	EISUP	0
ETS_300_102	ISDNPRI	27
ETS_300_102_C2	ISDNPRI	27
ETS_300_121	SS7-ITU	0
ETS_300_172	ISDNPRI	29
ETS_300_356	SS7-ITU	0
GR317	SS7-ANSI	0
HONGKONG	SS7-ITU	0
IETF_SIP	SIP	0
ISUPV1_POLI	SS7-ITU	0
ISUPV2_AUSTRIAN	SS7-ITU	0
ISUPV2_AUSTRIAN_C2	SS7-ITU	0
ISUPV2_CZECH	SS7-ITU	0
ISUPV2_DUTCH	SS7-ITU	0
ISUPV2_FINNISH96	SS7-ITU	0
ISUPV2_FINNISH96_SIP	SIP-I	0
ISUPV2_FRENCH	SS7-ITU	0
ISUPV2_GERMAN	SS7-ITU	0
ISUPV2_GERMAN_SIP	SIP-I	0
ISUPV2_ISRAEL	SS7-ITU	40
ISUPV2_JAPAN	SS7-JAPAN	10
ISUPV2_JAPAN_C2	SS7-JAPAN	0
ISUPV2_NORWEGIAN	SS7-ITU	0
ISUPV2_POLISH	SS7-ITU	0
ISUPV2_SPANISH	SS7-ITU	0
ISUPV2_SPANISH_C2	SS7-ITU	0
ISUPV2_SWISS	SS7-ITU	0
ISUPV2_SWISS_C2	SS7-ITU	0
ISUPV2_VIETNAM	SS7-ITU	0
ISUPV3	SS7-ITU	0
ISUPV3_FRENCH	SS7-ITU	0
ISUPV3_UK	SS7-UK	0
ISUPV3_UK_C2	SS7-UK	15
ISUPV3_UK_C3	SS7-UK	0
ISUPV3_UK_C4	SS7-UK	15
ISUPV3_UK_SIP	SIP-I	0

Table 8 Supported Protocol Variants (continued)

Protocol Variant Name	Protocol Family	Switch Type
Q721_BASE	SS7-ITU	5
Q721_BRAZILIAN	SS7-ITU	5
Q721_BRAZILIAN_C2	SS7-ITU	5
Q721_CHINA	SS7-CHINA	5
Q721_FRENCH	SS7-ITU	5
Q721_PHILLIPINE	SS7-ITU	5
Q761_97VER_BASE	SS7-ITU	0
Q761_97VER_RUSS	SS7-ITU	0
Q761_97VER_RUSS_C2	SS7-ITU	0
Q761_97VER_RUSS_SIPI	SIP-I	0
Q761_99VER_AUSTRAL_C3	SS7-ITU	0
Q761_99VER_BASE	SS7-ITU	0
Q761_99VER_BASE_SIPI	SIP-I	0
Q761_ARGENTINA	SS7-ITU	0
Q761_ARGENTINA_C2	SS7-ITU	0
Q761_AUSTRAL	SS7-ITU	0
Q761_AUSTRAL_C2	SS7-ITU	0
Q761_BASE	SS7-ITU	0
Q761_BELG	SS7-ITU	0
Q761_BELG_97VER	SS7-ITU	0
Q761_CHILE	SS7-ITU	0
Q761_CHINA	SS7-CHINA	0
Q761_CHINA_C2	SS7-CHINA	0
Q761_DANISH	SS7-ITU	0
Q761_GERMAN	SS7-ITU	0
Q761_INDIA	SS7-ITU	0
Q761_KOREAN	SS7-ITU	0
Q761_MALAYSIAN	SS7-ITU	0
Q761_NEWZEALAND	SS7-ITU	0
Q761_PERU	SS7-ITU	0
Q761_PORTUGAL	SS7-ITU	0
Q761_SINGAPORE	SS7-ITU	0
Q761_SINGAPORE_C2	SS7-ITU	0
Q761_TAIWAN	SS7-ITU	0
Q761_THAILAND	SS7-ITU	0
Q767_AUSTRALIA	SS7-ITU	0

Table 8 Supported Protocol Variants (continued)

Protocol Variant Name	Protocol Family	Switch Type
Q767_BASE	SS7-ITU	0
Q767_BRAZIL	SS7-ITU	0
Q767_BRAZIL_C2	SS7-ITU	0
Q767_COLOMBIA	SS7-ITU	0
Q767_GUATEMALA	SS7-ITU	0
Q767_INDONESIA	SS7-ITU	0
Q767_ITAL	SS7-ITU	0
Q767_ITAL_C2	SS7-ITU	0
Q767_MEXICAN	SS7-ITU	0
Q767_NIGERIAN	SS7-ITU	0
Q767_RUSS	SS7-ITU	0
Q767_RUSS_C2	SS7-ITU	0
Q767_SINGAPORE	SS7-ITU	0
Q767_SPAN	SS7-ITU	0
Q767_SWED	SS7-ITU	0
Q767_TURKISH	SS7-ITU	0
Q931	ISDNPRI	27
Q931_AUSTRALIA	ISDNPRI	19
Q931_SINGAPORE	ISDNPRI	27
QBE	CTI-QBE	0

Known Issues and Operational Recommendations

This section contains information about known issues and the corresponding workarounds in the Cisco PGW 2200 Softswitch software release 9.8(1).



Note

For more information about Cisco IOS issues and workarounds, see the Cisco IOS release notes for your platform.

Instability of nge Interfaces on X4200 M2 Platform Under Duplex Mismatch Condition

The Netra X4200 M2 server has four Gigabit Ethernet interfaces:

- Net 0 (nge0)
- Net 1 (nge1)
- Net 2 (e1000g0)

- Net 3 (e1000g1)

For Cisco PGW 2200 Softswitch deployments that use this platform, the nge interfaces can experience a hard hang if a network duplex mismatch occurs during operation. For stability purposes, we recommend that you use the Net 2 (e1000g0) and Net 3 (e1000g1) interfaces, and not the nge0 and nge1 interfaces. The CDETS number for this issue is CSCtd40144.

Caveats

Use Bug Toolkit to query caveats. The tool is located at the following url:

http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl

Related Documentation

This document contains information that is related to software release 9.8(1). The documents that contain additional information related to the Cisco PGW 2200 Softswitch are at the following url:

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/tsd_products_support_series_home.html

You can find the Cisco PGW 2200 Softswitch documentation map at the following URL:

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/products_documentation_roadmaps_list.html

Before Installation

Before you install the Cisco PGW 2200 Softswitch software, consult the following related documentation for information about hardware installation and system requirements:

- *The Overview Guide* for your solution
- *Cisco PGW 2200 Softswitch Hardware Installation Guide—Releases 7 & 9*
- *Cisco PGW 2200 Softswitch Release 9.8 Software Installation and Configuration Guide*
- *Regulatory Compliance and Safety Information for the Cisco PGW 2200 Softswitch*
- *The Gateway Installation Guide* for your solution

After Installation

After you install the Cisco PGW 2200 Softswitch software, consult the following related documentation for information on configuring and provisioning your system:

- *Cisco PGW 2200 Softswitch Release 9.8 Provisioning Guide*
- *The Provisioning Guide* for your solution

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

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