



Preface

Revised: December 17, 2009, OL-1110-21

About this Preface

This preface describes the objectives, audience, organization, and conventions of this document, and explains how to find additional information on related products and services. It contains the following sections:

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Document Objective

This document describes the information you need to provision your Cisco PGW 2200 Softswitch. The document contains tables and worksheets for you to use for provisioning your system.

Audience

The primary audience for this document is network operators and administrators who have experience in the following areas:

- Telecommunications network operations
- Data network operations
- SS7 protocols, switching, and routing

- Telecommunications hardware
- Data network hardware

In addition, the following audiences may find this document useful:

- Software and hardware installers
- Network designers

Document Organization

This document contains the chapters listed in [Table 1](#).

Table 1 **Document Organization**

Chapter	Title	Description
Chapter 1	Provisioning Overview	This chapter includes a checklist of tasks to perform before you use this guide to provision your system, and information to gather before beginning. It also includes the following information: <ul style="list-style-type: none"> • Before You Begin • Cisco PGW 2200 Softswitch Provisioning Overview • Cisco PGW 2200 Softswitch Provisioning • Cisco PGW 2200 Softswitch Provisioning Tools
Chapter 2	Planning for Provisioning	This chapter provides a general overview of planning for provisioning, including: <ul style="list-style-type: none"> • Planning signaling routes to other switches • Planning signaling links to Signaling Points (SPs) • Planning media gateway control links • Planning trunks, trunk groups, and routes
Chapter 3	Provisioning with the Cisco Voice Services Provisioning Tool	This chapter describes the graphical user interface provisioning procedures.
Chapter 4	MML Basics	This chapter describes how to use MML commands.
Chapter 5	Adding Components with MML	This chapter describes how to use MML commands to add system components.
Appendix A	Components and Properties	This appendix lists the component names and properties.
Appendix B	Planning Worksheets	This appendix contains worksheets to use for provisioning.

Document Conventions



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



Tip

Means *the following information might help you solve a problem*.



Timesaver

Means *the described action saves time*. You can save time by performing the action described in the paragraph.

Syntax Conventions

In [Chapter 4, “MML Basics”](#) and in [Chapter 5, “Adding Components with MML,”](#) the same command syntax conventions are used as those shown by MML itself when the MML command **HELP** is entered within MML. For MML commands, the Backus-Naur conventions are used. For additional information on the MML command syntax, refer to the *Cisco PGW 2200 Softswitch Release 9 MML Command Reference*.

Conventions used throughout this guide are shown in [Table 2](#).

Table 2 Conventions

Convention	Meaning	Description / Comments
Boldface	Commands and keywords you enter as shown.	offset-list
<i>Italics</i>	Variables for which you supply values.	command <i>type interface</i> You replace the variable with the type of interface. In contexts that do not allow italics, such as online help, arguments are enclosed in angle brackets (< >).
Square brackets ([])	Optional elements.	command [abc] abc is optional (not required), but you can choose it.
Vertical bars ()	Separated alternative elements.	command [abc def] You can choose either abc or def, or neither, but not both.

Table 2 **Conventions (continued)**

Convention	Meaning	Description / Comments
Braces ({ })	Required choices.	command { abc def } You must choose either abc or def, but not both.
Braces and vertical bars within square brackets ([{ }])	A required choice within an optional element.	command [abc { def ghi }] You have three options: nothing abc def abc ghi
Caret character (^)	Control key.	The key combinations ^D and Ctrl-D are equivalent: Both mean “hold down the Control key while you press the D key.” Keys are indicated in capital letters, but are not case sensitive.
A nonquoted set of characters	A string.	For example, when setting an SNMP community string to <i>public</i> , do not use quotation marks around the string; otherwise, the string will include the quotation marks.
System prompts	Denotes interactive sessions, indicates that the user enters commands at the prompt.	The system prompt indicates the current command mode. For example, the prompt Router (config) # indicates global configuration mode.
Screen font	Terminal sessions and information the system displays.	
Angle brackets (< >)	Nonprinting characters such as passwords.	
Exclamation point (!) at the beginning of a line	A comment line.	Comments are sometimes displayed by the Cisco IOS software.

Conventions used in the Cisco PGW 2200 Softswitch system (such as in MML commands) are shown in [Table 3](#).

Table 3 **Data Types**

Data Type	Definition	Example
Integer	A series of decimal digits from the set of 0 through 9 that represents a positive integer. An integer may have one or more leading zero digits (0) added to the left side to align the columns. Leading zeros are always valid as long as the number of digits is less than or equal to ten digits. Values of this type have a range of zero through 4294967295.	123 000123 4200000000
Signed integer	This data type has the same basic format as the integer but can be either positive or negative. When negative, it is preceded by the sign character (-). As with the integer data type, this data type can be as many as ten digits in length, not including the sign character. The value of this type has a range of 0 minus 2147483647 through 2147483647.	123 -000123 -21000000001
Hexadecimal	A series of 16-based digits from the set of 0 through 9, a through f, or A through F. The hexadecimal number may have one or more leading zeros (0) added to the left side. For all hexadecimal values, the maximum size is 0xffffffff (eight hexadecimal digits).	1f3 01f3000
Text	A series of alphanumeric characters from the ASCII character set, where defined. Tab, space, and double quote (“ ”) characters cannot be used. Text can be as many as 255 characters; however, it is recommended that you limit the text to no more than 32 characters for readability.	EntityID LineSES_Threshold999
String	A series of alphanumeric characters and white-space characters. A string is surrounded by double quotes (“ ”). Strings can be as many as 255 characters; however, it is recommended that you limit the strings to no more than 80 characters for readability.	“This is a descriptive string.”

Hexadecimal and integer fields in files may have different widths (number of characters) for column alignment.

Documentation Roadmap and Documentation Suite

Consult the following related documentation for information about the Cisco PGW 2200 Softswitch software and the solutions it supports, including the Cisco SS7 Interconnect for Access Servers Solution and the Cisco SS7 Interconnect for Voice Gateways Solution and the Cisco Packet Tandem Solution.

Documentation Roadmap

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

Hardware Documentation

- *Cisco PGW 2200 Softswitch Hardware Installation Guide - Releases 7 & 9*
- *Regulatory Compliance and Safety Information for Cisco Media Gateway Controller Hardware*

Software Installation and Configuration Documentation

- *Cisco Media Gateway Controller Software Installation and Configuration (Release 9.7)*
- *Cisco PGW 2200 Softswitch Release 9 Dial Plan Guide (through Release 9.7)*
- *Cisco PGW 2200 Softswitch Release 9 Provisioning Guide (through Release 9.7)*
- *Cisco Media Gateway Controller Software Release 9 Billing Interface Guide*
- *Cisco PGW 2200 Softswitch Release 9 MML Command Reference*
- *Cisco PGW 2200 Softswitch Release 9 Messages Reference*
- *Cisco PGW 2200 Softswitch Release 9 Operations, Maintenance, and Troubleshooting Guide*
- *Release Notes for Cisco PGW 2200 Softswitch Release 9.7(3)*
- *Cisco Media Gateway Controller Online Documentation Notice*
- *Cisco Media Gateway Controller SLT Documentation Notice*
- *Billing and Measurements Server User's Guide*

Gateway Documentation

Cisco DAS and H.323 VoIP Gateway Installation and Configuration Guide

Terminology

The following terms are used in this document:

- **Cisco PGW 2200 Softswitch host**—A Sun host server running Cisco PGW 2200 Softswitch software.
- **Cisco PGW 2200 Softswitch node**—An active and standby Cisco PGW 2200 Softswitch.
- **Simplex Cisco PGW 2200 Softswitch node**—A node that uses a single Cisco PGW 2200 Softswitch host. Typically, such nodes are used for solution evaluation tests or for small installations. In this configuration, any loss of service in the Cisco PGW 2200 Softswitch host disrupts all call traffic.
- **Continuous-service Cisco PGW 2200 Softswitch node**—A node that uses two Cisco PGW 2200 Softswitch hosts to prevent system downtime caused by failure of a single host. Calls in progress are maintained when one Cisco PGW 2200 Softswitch host fails. Continuous-service nodes use ITP-Ls to preprocess SS7 signaling and distribute signaling to both Cisco PGW 2200 Softswitch hosts. If a failover occurs, all stable calls are maintained. A continuous-service node may also be referred to as a fault-tolerant node or an active-standby PGW pair.

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.

Summary History of Document Changes

Table 4 describes the document changes made after the initial release of the *Cisco PGW 2200 Softswitch Release 9 Provisioning Guide (through Release 9.7)*.

Table 4 Summary History of Document Changes

Subject	Document Number and Change Date	Change Summary
Replaced property tables with a reference to another book	OL-1110-21	Replaced property tables with a reference to <i>Cisco PGW 2200 Softswitch Release 9 MML Command Reference</i> in Appendix A “Components and Properties.” Removed references to TALI, SGNODE, SGPAIR, SS7SGIPLNK, SS7SGPATH, SS7SGSUBSYS, and SS7SGLNK in Chapter 2, “Planning for Provisioning,” and Chapter 5, “Adding Components with MML.”
Added new properties and values	OL-1110-20	Updated the DCHAN parameter SUBUNIT with new values (modified Table 2-22). Added the trunk group properties UseGtdCalledPartyNumber and InhibitPasson. (Modified Table 2-30 , Table A-68 , and Table A-69). Added the property CallHoldInterworkingEnabled (Modified Table A-68 and Table A-69). Modified the description of the property H248GatewayReserveValue in Table A-68 and Table A-69 . Added a note to indicate that this property is deleted in Release 9.7S23P23 and later.
Added an new value to a property	OL-1110-19, October 2, 2009	Inserted an additional acceptable value (2) for the UnsolicitedNotifyMethod property. (Modified Table 2-30 , Table 3-16 , Table A-68 , Table A-69).
Added clarifications	OL-1110-18, August 25, 2009	Added a Tip to the “Routing” section on page 5-27 to provide a link to detailed descriptions of the parameters that are used with the rtrnkggrp, rtrnkr, and rtrlist components. Updated the product name to Cisco PGW 2200 Softswitch throughout the document.

Table 4 Summary History of Document Changes (continued)

Subject	Document Number and Change Date	Change Summary
Added trunk group properties and descriptions	OL-1110-17, July 30, 2009	Updated Table 3-16 to include all the properties applicable to the trunk group in the “ Trunk Group Properties ” section on page 3-104 .
Added feature information and updated product name	OL-1110-16, July 23, 2009	<p>Updated product name to Cisco PGW 2200 Softswitch throughout the document.</p> <p>Corrected the description of the EchoCanRequired property in the “Properties” section on page A-99.</p> <p>Added the properties NetSuspendResumeMap2Invite and RejectOfferForResourcePending to the “Trunk Group Properties” section on page 3-104 and the “Properties” section on page A-99.</p> <p>Corrected the spelling of the property SuppressCHGNtoCGPNMapping in the “Properties” section on page A-99.</p> <p>Increased the range of the property RedirNumForAnalysis in the “Properties” section on page A-99.</p> <p>Throughout the document, for the command prov-add:DPNSSPATH, deleted MDO=xxxxx. It is not part of this command.</p> <p>Updated the list of external nodes in the “Planning Media Gateway External Nodes” section on page 2-34.</p>
Added feature information	OL-1110-15, June 15, 2009	<p>Made additional corrections in the “Importing Saved MML Configuration Data” section on page 4-13.</p> <p>Added the trunk group property MidCallCodecSelect in Appendix A “Components and Properties.”</p>
Added feature information	OL-1110-15, June 10, 2009	<p>Removed the obsolete note in the “Trunk Group Properties” section on page 3-104, “Although the property order in the Cisco VSPT Trunk Group Data and Property window is somewhat different from that required in the MML file, the output file that Cisco VSPT generates uses the correct sequence. For a list of properties in that sequence, see Table 2-30 on page 2-61.”</p> <p>Updated the procedure in the “Importing Saved MML Configuration Data” section on page 4-13.</p> <p>Removed the invalid property, <code>if=enet-if</code> in the prov-add:siplnk command in “Adding a SIP Signaling Link” section on page 5-46.</p>

Table 4 Summary History of Document Changes (continued)

Subject	Document Number and Change Date	Change Summary
Added feature information	OL-1110-14, February, 2009	<p>Updated the descriptions for the property RedirMax in Chapter 2, “Planning for Provisioning,” and Appendix A “Components and Properties.”</p> <p>Corrected the descriptions for the trunk group parameters TYPE and SELSEQ in Chapter 2, “Planning for Provisioning,” and Chapter 3, “Provisioning with the Cisco Voice Services Provisioning Tool.”</p> <p>Corrected the capacity OPC information for the point code TYPE parameter in Chapter 2, “Planning for Provisioning.”</p> <p>Corrected the description for the property gnInclude in Chapter 2, “Planning for Provisioning,” and Appendix A “Components and Properties.”</p> <p>Updated Chapter 4, “MML Basics”—Deleted the Carrier Selection table.</p> <p>Updated Chapter 4, “MML Basics” to clarify the use of migrateTKGfile script.</p> <p>Updated Chapter 4, “MML Basics,” and Appendix A, “Components and Properties,” to add the property SipSatelliteIndEnable.</p> <p>Clarified the information for suppressing caller ID in a SIP environment in Chapter 5, “Adding Components with MML.”</p> <p>Added the property *.isdnNSF in Appendix A “Components and Properties.”</p> <p>Added the property *.mgcpDomainNameLocal in Appendix A “Components and Properties.”</p> <p>Corrected OPC information in Chapter 2, “Planning for Provisioning,” to indicate there can be up to eight capability OPCs for each true OPC.</p> <p>Removed references to Tekelec in Chapter 2, “Planning for Provisioning,” and Chapter 5, “Adding Components with MML.”</p>
Added feature information	OL-1110-13, March, 2008	<ul style="list-style-type: none"> Added information for the Multiple Incoming IP Trunks feature.
Updated for VSPT Release 2.7(3)	OL-1110-13, December, 2007	<ul style="list-style-type: none"> Updated Chapter 3, “Provisioning with the Cisco Voice Services Provisioning Tool” for VSPT release 2.7(3). Added Cisco IP Transfer Point - LinkExtender (ITP-L) as the new name for Cisco Signaling Link Terminal (SLT). Over time, Cisco ITP-L will replace Cisco SLT in publications and the product.
Updated for Release 9.7	OL-1110-13, November, 2007	<ul style="list-style-type: none"> Added new information for Release 9.7 features.

Table 4 Summary History of Document Changes (continued)

Subject	Document Number and Change Date	Change Summary
Added feature information	OL-1110-12, October, 2007	<ul style="list-style-type: none"> • Modified CDR 4239, added CDR 4065 for Redirect Server feature.
Added feature information	OL-1110-12, October, 2007	<ul style="list-style-type: none"> • Added the following properties for the SIP Loose Routing feature: <ul style="list-style-type: none"> – *.sipEgressRoutingControl – *.sipIngressRoutingControl
Added feature information	OL-1110-12 June 27, 2007	<ul style="list-style-type: none"> • Added the *.ItpActionRequest property for the Optimize Routing with MAP Query feature.
Added feature information	OL-1110-11 August 12, 2005	<ul style="list-style-type: none"> • Added the *.SendDtmfBeforeConnect property. • Added ATP.dat as a GTD override_string parameter. • Added values 3 and 4 to *.GatewayRBToneSupport. • Added the *.NFASImplicitInterfaceId property. • Added a value of 2 to the CLIPEss parameter range. • Added a note for *.GatewayRBToneSupport. • Deleted the DetectFaxModemTone information. • Changed *.CustomerVPNOffNetTblNum and *.CustomerVPNOnNetTblNum range from 0-8 to 1-8. • Added VXSM to the selection for *.MGCPBehavior. • Added software Release 9.6(1) information.
Added feature information	OL-1110-10 June 28, 2004	<ul style="list-style-type: none"> • Changed the name parameter range to 1 through 9999 for RTTRNKGRP, SIPRTTRNKGRP, and TRNKGRP. • Added the *.SuppressCHGNtoCGPNMapping property. • Added the M3UA scaling limits to Table 5-11 in Chapter 5, “Adding Components with MML.” • Changed the *.MaxForwards default value from 10 to 70. • Removed SIPPROFILE references from Chapter 5. • Added the *.LocalAnnBehavior property. • Corrected the mgcpRetxTimer default value in Appendix A. • Added CAI.loc to the list of GTD parameter names that can be entered in the override_string. • Changed the valid values for *.Support183 to 0, 3, or 4.

Table 4 Summary History of Document Changes (continued)

Subject	Document Number and Change Date	Change Summary
Added feature information	OL-1110-10 June 28, 2004	<ul style="list-style-type: none"> • Changed the listed RedirMax property default value to 5. • Added TCPLINK and BRIPATH components in support of the QSIG over BRI and Q.931 backhaul feature. • Added Table 5-6 and Table 5-7 to Chapter 5, “Adding Components with MML.” • Added the validation parameter for the ISUP timer profile in “Adding Components with MML”. • Corrected the DetectFaxModemTone default value in Appendix A. • Added Understanding Point Code Addressing, page 5 information in Chapter 5, “Adding Components with MML.” • Changed the maximum value of CUMSACKTO to 500. • Added the following new properties for software Release 9.5(2): MwiStringON, MwiStringOFF, TransferAwaitConnect, MWIInvokeTimerT1, SSCTInvokeTimerT1, SipReferForSimpleStepXfer, GWDefaultATMProfile, PlayAnnouncement, AtmConnectionType, BTechPrefix, LoopAvoidanceSupport, LoopAvoidanceCounter, and CliCodeOfPractice3
Added feature information	OL-1110-09 October 30, 2003	<ul style="list-style-type: none"> • Added DPNSS as a protocol family supported by SuppressCLIDigits. in Table A-68. • Added a reference to Appendix A, “Protocol Variants” to the ISUPTMRPROFILE descriptions in Chapter 2 and Chapter 5. • Revised the SIPRTRNKGRP URL parameter description in Table A-40 on page 61. • Incorporated changes for software Release 9.4(1) including: the following new components: ASSOCIATION, IPLNK, IPRUTE, LINEXLATE, M3UAKEY, M3UAROUTE, SGP, SIPLNK, SS7SGIPLNK, SS7PATH, SUAKEY, and SUAROUTE; and the following new properties: Anumnormalise, Bnumnormalise, CallForwardRerouteDisabled, CustomerVPNid, CustomerVPNOffNetTblNum, CustomerVPNOnNetTblNum, FeatureTransparencyDisabled, sipMimeBodySupport, DefaultPN, DefaulPNNOA, DefaulPNNPI, DefaulPNPres, EnableIPScreening, SipIPSource, populateSDPInfoInCDR, MaxSubscribeDuration, MinEventSubscribeDuration, SubscribeNotifySupport, UnsolicitedNotifyMethod, OD32DigitSupport, and SdpXmitToH323Trigger

Table 4 Summary History of Document Changes (continued)

Subject	Document Number and Change Date	Change Summary
Added text for property changes	OL-1110-08 March 30, 2003	<ul style="list-style-type: none"> • Revised the NEXTHOP note on page 42. • Added TO-02 timer information for the RingNoAnswer trunk group property in Table 2-30 on page 61. • Added the value of 0 to disable mtp3MtpRstrT20 and mtp3ApcMtpRstrT21 for all SS7 protocol variants. • Added a note explaining “new” source version Note in MML Basics. • Revised text for the PROV-EXP—Export Configuration Data description. • Revised the MML example under Adding SIP Domain Name System Properties. • Added information regarding the GWDefaultCodecString property description. • Software Release 9.2(2) patch CSCOnn033 added the IsupTransEarlyACMEnabled property. • Changed the SS7-ANSI.mtp3TfrUsed default value to true. • Changed the IsupTransEarlyBackwardDisabled and IsupTransparencyDisabled default values to 1.
Added feature information	OL-1110-07 December 9, 2002	<ul style="list-style-type: none"> • Added variable ISUP timers. • Added software Release 9.3(2) information. • Revised property information.
Added feature information	OL-1110-06 September 19, 2002	<ul style="list-style-type: none"> • Added dual MGCP IP link note. • Modified the CGBA2 and default BC descriptions. • Updated trunk group property list. • Added internal cause code values. • Added new properties and property parent object. • Added software Release 9.3(1) information. • Removed obsoleted MML commands (SGCPPATH, CASPATH, and TCAPIPPATH).
Provisioning changes	OL-1110-05 March 22, 2002	<ul style="list-style-type: none"> • Added information regarding profiles, GTD NOA, and time conditional routing. • Changed the value of DPCs per MGC to 600. • Changed the value of routes per MGC to 1200.
VSPT changes	OL-1110-04, January 28, 2002	Modified Chapter 3, “Provisioning with the Cisco Voice Services Provisioning Tool” .
Added properties	OL-1110-03, January 8, 2002	In Appendix A, “Components and Properties,” added SS7-ANSI.congProc and SS7-ANSI.unavailProc property definitions.

Table 4 *Summary History of Document Changes (continued)*

Subject	Document Number and Change Date	Change Summary
Provisioning rules MML names re-ordered for routing Parameter values	OL-1089-02, December 3, 2001	<ul style="list-style-type: none"> • In Chapter 1, “Provisioning Overview,” added Cisco PGW 2200 Softswitch Provisioning Rules, page 3. • In Chapter 5, “Adding Components with MML,” re-ordered MML names and steps under Routing, page 27. • Added parameter value details in Table A-40 on page 61.
—	OL-1110-01, October 16, 2001	Initial release

