Getting Started with Cisco Hosted Unified Communication Services

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CONTENTS

Preface

This preface includes the following sections:

Overview

This guide explains how to implement Cisco Hosted Unified Communications Services (Hosted UCS) Release 6.1(a). It includes background information about the hardware and software components included in the Hosted UCS 6.1(a) platform and explains how these components fit together. It also provides a high-level overview of the procedures required to configure each component.

This document assumes that the high-level design, the low-level design, and the dial plan are complete.

Audience

This document is written for Cisco Advanced Services (AS), system integrators, Cisco partners, and Cisco customers who are interested in implementing Cisco Hosted UCS 6.1(a).

This document is to be used with the documentation for the individual components of the Hosted UCS 6.1(a) platform after completing the high-level design (HLD) and low-level design (LLD) for a specific customer implementation.

Organization

This document is organized as follows:

Chapter/Appendix	Description
Chapter 1, "Introducing Cisco Hosted Unified Communications Services"	Provides a high-level view of the architecture and overall operation of Cisco Hosted Unified Communications Services (Hosted UCS) 6.1(a).
Chapter 2, "Configuring Hosted Unified Communications Services Components Before Loading Bulk Data"	Describes the high-level tasks required to apply static configuration to Hosted UCS software components.
Chapter 3, "Managing the Hosted Unified Communications Services Platform with VisionOSS BVSM"	Summarizes the options provided by VisionOSS BVSM for managing the components of the Hosted UCS platform.
Chapter 4, "Using Bulk Loaders for the Initial Configuration of Hosted Unified Communication Services Components"	Explains how to perform the initial configuration of the Hosted UCS platform components by loading bulk data using VisionOSS BVSM.

Chapter/Appendix	Description
Chapter 5, "Backing Up and Reinitializing Hosted Unified Communications Services Components"	Explains how to clear and reinitialize the components of a Hosted UCS platform and provides general recommendations for upgrading from previous versions.
Appendix A, "Sample Hosted Unified Communications Services Build of Materials"	Provides the standard bill of materials (BOM) for the Hosted UCS 6.1(a) platform.

Related Documentation

The following documentation provides additional information about the Hosted UCS 6.1(a) platform:

- *Release Notes for Cisco Hosted Unified Communications Services (Hosted UCS), Release 6.1(a)*
- *Software Support Matrix for Cisco Hosted Unified Communications Services (Hosted UCS), Release 6.1(a)*
- *Solutions Reference Network Design for Cisco Hosted Unified Communications Services (Hosted UCS), Release 6.1(a)*
- *Provisioning Guide for Cisco Hosted Unified Communications Services, Release 6.1(a)*

Obtaining Documentation and Technical Assistance

Cisco documentation and additional literature are available on Cisco.com. This section explains the product documentation resources that Cisco offers.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/techsupport

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

The Product Documentation DVD is a library of technical product documentation on a portable medium. The DVD enables you to access installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the HTML documentation and some of the PDF files found on the Cisco website at this URL:

http://www.cisco.com/univercd/home/home.htm

The Product Documentation DVD is created and released regularly. DVDs are available singly or by subscription. Registered Cisco.com users can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at the Product Documentation Store at this URL:

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You must be a registered Cisco.com user to access Cisco Marketplace. Registered users may order Cisco documentation at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

If you do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to do the following:

- Report security vulnerabilities in Cisco products
- Obtain assistance with security incidents that involve Cisco products
- Register to receive security information from Cisco

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For emergencies only — security-alert@cisco.com

  An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For nonemergencies — psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked encryption key or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT to find other means of encrypting the data before sending any sensitive material.

Document Conventions

This guide uses the following conventions to convey instructions and information:

Convention	Description
boldface font	Commands and keywords.
italic font	Variables for which you supply values.
[ ]	Keywords or arguments that appear within square brackets are optional.
{x | y | z}	A choice of required keywords appears in braces separated by vertical bars. You must select one.
`screen font`	Examples of information displayed on the screen.
`boldface screen font`	Examples of information you must enter.
< >	Nonprinting characters, for example passwords, appear in angle brackets.
[ ]	Default responses to system prompts appear in square brackets.

CHAPTER 1

Introducing Cisco Hosted Unified Communications Services

This chapter provides a high-level overview of the architecture and components of Cisco Hosted UCS, Release 6.1(a), describes applications and features, and defines high-level planning elements for Hosted UCS implementation. It includes the following sections:

Cisco Hosted Unified Communications Services Overview

Service providers can use a single Cisco Hosted UCS platform to offer Cisco Unified Communications Manager (Cisco Unified CM) applications and features to multiple customers (multi-tenant mode), or to one large customer (single-tenant mode).

Hosted UCS allows the sharing of the following centralized resources:

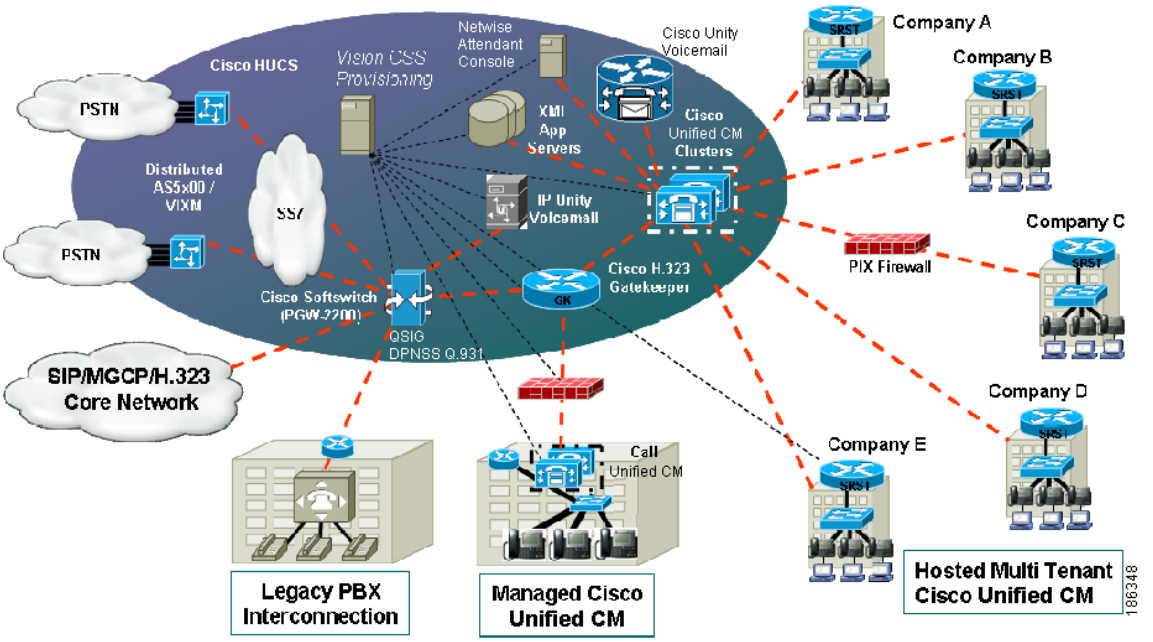
- Cisco PSTN Gateway 2200 Softswitch (PGW)
- Cisco Unified CM
- Trunking gateway
- Media resources

VisionOSS Business Voice Services Manager (BVSM) provides provisioning and administration for this multi-tenant solution.

Within a single Hosted UCS platform, a specific set of hardware resources can also be dedicated to a single customer if necessary to support the required level of service. For example, one or more Cisco Unified CM clusters or a Cisco Unity voice mail can be dedicated to a single customer, while other resources can be shared.

The voice network architecture for the Hosted UCS platform integrates the call control capability of a Cisco Unified CM system and the routing and services function of a Cisco PGW. This supports a broad range of Hosted UCS platform deployments. Figure 1-1 illustrates the Hosted UCS platform.

Figure 1-1 Hosted UCS Platform



Voice services for Hosted UCS tenants are provided by Cisco Unified CM and Cisco PGW platforms:

- Cisco Unified CM provides end-user-facing services to individual tenants
- Cisco PGW provides a routing function that mediates among tenants, and connection between the PSTN and each zone in the overall implementation

Virtualized Communications Services

The resources of the Cisco Unified CM system and the Cisco PGW can be shared among several tenants because VisionOSS BVSM partitions (*virtualizes*) resources for individual tenants. BVSM directly supports applications, such as directory services and extension mobility for IP phones, while shielding customers from the complexities of the underlying data structures and routing schema.

Table 1-1 summarizes the applications that are supported by Hosted UCS, Release 6.1(a), in single or multi-tenant mode, and indicates whether the application can be automatically provisioned through BVSM or if it must be manually provisioned.

Table 1-1 Multi-Tenant and Autoprovisioning Support for Hosted UCS Applications

Component	Multi-tenant?	Auto provision with BVSM?
ARC Attendant Console	No	No
Billing Applications (Building Applications Management; billing	No	Yes[1]
Cisco MeetingPlace	No	Yes
Cisco Unity	No	Yes[2]
IP Unity Voice Messaging (Voice Messaging only)	Yes	Yes
IP Unity Web Collaboration/Conferencing	Yes	Yes
Netwise Attendant Console	Yes	Yes
XML Application Servers	Yes	Yes

1. Sharing customer history files with Mediation system, such as ISI
2. Unity users can be provisioned using BVSM.

For more information about VisionOSS BVSM, see Chapter 3, "Managing the Hosted Unified Communications Services Platform with VisionOSS BVSM."

Hosted Unified Communications Services Platform Components

This section identifies and briefly describes the Hosted UCS platform components. It includes the following topics:

VisionOSS BVSM

VisionOSS BVSM provides a global view of the Hosted UCS platform, and provides integrated provisioning of most of the major components, including:

- Cisco Unified CM
- Cisco PGW
- Cisco IOS Gatekeepers and local gateways (including SRST)
- VisionOSS DHCP server
- IP Unity voice mail and unified messaging system
- Cisco Unity voicemail system
- VoiceRite-Websphere Voice Response voicemail system
- Netwise Attendant Console System

BVSM provides the following features and functionality:

- Automates the deployment, provisioning, and management of large-scale, multi-tenant, multi-site hosted VoIP services across regional and international boundaries.
- Provides virtualized services by managing the configuration of the Cisco Unified CM and Cisco PGW dial plans and analog gateways, including multiple versions of code on integrated clusters.

- Supports dial plan management across Cisco Unified CM and the Cisco PGW and allows rapid service activation. Service activation includes configuring dial tone, voice mail, conferencing, corporate directories, attendant consoles, and XML applications.
- Provides a comprehensive resource inventory management tool for IP addresses, internal numbers and E.164 external numbers. BVSM also provides a basic inventory management system for phones, lines, and services.
- Ensures that changes in configuration in one Hosted UCS platform component are mapped across other affected components. BVSM manages multiple network elements, performing multiple configuration steps for each transaction.
- Supports secure, decentralized administration, which allows customers to perform their own moves, adds, and changes.

For more information about VisionOSS BVSM, see the following URL:
http://www.visionoss.com/products/bvsm/

Cisco Unified Communications Manager

In the Hosted UCS platform, Cisco Unified CM provides business IP telephony services to enterprises located within the bounds of a shared voice infrastructure. The Cisco Unified CM is a hosted or managed device that can be partitioned in a multi-tenant manner to provide segregated service to multiple enterprises of all sizes or in a dedicated manner to support a single large-scale enterprise. A Cisco Unified CM cluster or clusters can be deployed within a network provider domain to provide service to IP phones located at an end-user facility.

For more information on Cisco Unified CM, see the following URL:
http://www.cisco.com/en/US/products/sw/voicesw/ps556/index.html

Cisco PGW

The Cisco PGW provides the following key functions within the Hosted UCS platform:

- Time-division multiplexing (TDM) PSTN interconnect—Provides connectivity for all services to the TDM-based PSTN via Signaling System 7 (SS7) or ISDN Primary Rate Interface (PRI), depending on the requirements of the installation. The Cisco PGW also incorporates some capabilities that can assist in meeting local regulatory requirements.
- Business voice access—Provides the business voice access service for TDM PBXes and IP PBXs.
- TDM PBX integration—Provides direct management by the Cisco PGW of PBXes that use PRI-based signaling interfaces, using Media Gateway Control Protocol (MGCP) with backhaul techniques, or can be managed indirectly using the H.323 protocol to the Cisco PGW for both PRI and Basic Rate Interface (BRI). The direct connection model typically offers greater flexibility and functionality.
- Routing and analysis engine—Provides a routing engine for inter-domain routing. All service platforms use the Cisco PGW to route calls that are not local, which ensures that the main dial plan and routing functions for the hosted platform are centrally located. The Cisco PGW also includes A and B number analysis and modification functions, as well as regulatory capabilities that can be applied to satisfy local requirements.

For more information about the Cisco PGW, see the following URL: http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/index.html

Cisco H.323 Signaling Interface

The Cisco H.323 Signaling Interface (HSI) adds an H.323 interface to the Cisco PGW, which allows calls to be established between the PSTN and an H.323 network. The Cisco H.323 HSI provides these services:

- Translation of signaling protocols for establishing, controlling, and releasing calls
- Administration of network parameters and protocol capabilities
- System and call-related statistics

- Fault reporting
- Overload management
- Event logging
- Simple Network Management Protocol (SNMP) interface

The Cisco HSI operates in a load-sharing configuration, while the Cisco PGW operates in an active/standby configuration. This operation allows the benefits of redundancy (if an HSI fails, the remaining HSIs continue to operate) and simple scaling (you can insert additional HSIs as the network expands). A minimum of two HSIs are required to ensure that the system continues to process calls in case of an equipment failure.

For more information about the Cisco HSI, see the following URL: http://www.cisco.com/en/US/docs/voice_ip_comm/pgw/hsi/4.3/guide/43ch1.html

Gatekeeper

An H.323 gatekeeper provides basic infrastructure capabilities as well as a registration capability for the Cisco PGW, Cisco Unified CM, H.323 customer premises equipment (CPE), and any H.323 customer devices. The gatekeeper forces all call signaling to use the Cisco PGW.

Trunking Gateway

The trunking gateway is a Cisco AS5x00 platform in the baseline architecture, which is based on Cisco IOS software. A Cisco AS5850 with STM-1 and E1 interfaces and a Cisco AS5350 with E1 interfaces were used in Cisco Hosted UCS tests.

However, because of the requirements of the initial applications, it is relatively easy to incorporate the Cisco MGX, Cisco Voice Internetworking Service Module (VISM), and Cisco Voice Switch Service Module (VXSM) products as needed.

For more information on Cisco AS5x00 platforms, see the following URL: http://www.cisco.com/en/US/products/hw/iad/index.html

Voice Mail

The Hosted UCS platform allows integration with the following two voice mail and unified messaging platforms:

- Cisco Unity can be used in the architecture to provide a feature-rich unified messaging platform that is integrated tightly with Microsoft Exchange or Lotus Domino, depending on the version of Unity deployed. However, Cisco Unity is intrinsically a single tenant/customer product because of its tight integration with the customer e-mail platform. Cisco Unity actually uses Exchange or Domino as the voice mail message store.
- Movius servers (IP Unity), has fewer features than Cisco Unity, especially in the area of unified messaging integration with Microsoft Exchange and Lotus Domino platforms. However, because Movius is inherently a multi-tenant product, it lets a single system share resources among multiple customers.

Other voice mail systems have been successfully integrated into the Hosted UCS platform to meet specific customer requirements. For example, the VoiceRite-Websphere Voice Response (WVR) unified messaging platform can be integrated through a Q.SIG interface.

Cisco Unity Unified Messaging Option

Cisco Unity delivers unified messaging and intelligent voice mail capabilities to enterprise and mid-market customers with Microsoft Exchange and Lotus Domino environments.

Cisco Unity Unified Messaging integrates transparently with Microsoft Outlook. Cisco Unity Unified Messaging also integrates with smart phones and other mobile devices to deliver all-in-one messaging.

Because Cisco Unity itself does not support multi-tenants, a separate Cisco Unity platform is required for each customer using the Hosted UCS platform. Integration of Cisco Unity into the Hosted UCS platform is at the Cisco Unified CM level, using the Cisco SCCP protocol in the Hosted UCS 6.1(a) design.

For more information about the Cisco Unity Messaging System, see the following URLs:

- Unity 4.2 for Microsoft Exchange—
http://www.cisco.com/en/US/products/sw/voicesw/ps2237/products_data_sheet0900aecd800fe148.html
- Unity 4.2 for Lotus Domino—
http://www.cisco.com/en/US/products/sw/voicesw/ps2237/products_data_sheet0900aecd800fe14d.html

Movius servers (IP Unity) Option

The Movius servers (IP Unity) Unified Messaging platform provides voice mail services in a multi-tenant environment and the Movius voice mail system supports the multi-tenant Hosted UCS architecture. Only the voice mail functions of the Movius server platform are currently used in the Hosted UCS platform.

The BVSM platform is integrated with the Movius server to allow provisioning through the BVSM voice mail user interface (GUI) functionality on a per-tenant basis. The interface between the Cisco PGW and the Movius server (IP Unity) voice mail system is SIP.

The Cisco PGW forwards the incoming calls to the voice mail system. After the caller leaves a message, the voice mail system uses the SIP NOTIFY message to notify the Cisco PGW that a message was left for the user.

The Cisco PGW supports only unsolicited subscription to the voice mail system and does not need to send a SIP SUBSCRIBE message to the voice mail system for every user with voice mail service enabled.

The Cisco PGW inter-works SIP and H.323 between the Movius server and Cisco Unified CM for message deposit, retrieval, and message waiting indicator (MWI). The inter-working of the Movius server through SIP and gateway-fronted Digital Private Network Signaling System (DPNSS)/Q Interface Signaling Protocol (QSIG) PBX is not supported in the Hosted UCS 6.1(a) release, so it is not possible to provide a hosted voice mail service for time division multiplexing (TDM) PBX users.

The BVSM platform uses the Movius server application programming interface (API), which is Common Object Request Broker Architecture (CORBA)/Extensible Markup Language (XML), to define business groups, provision pilot numbers, add/delete mailboxes assigned against a unique “internal” number and an “extension” number, and to assign class of service.

For further information about Movius server, see the following URL:
http://www.ip-unity.com/solutions/media_server.asp?Section=solutions

Attendant Consoles

The Hosted UCS platform supports three attendant console types as follows:

- Cisco Attendant Console—
  http://www.cisco.com/en/US/products/sw/voicesw/ps555/index.html
- ARC Connect Attendant Console (ARC Solutions)—
  http://www.arcsolutions.com/NorthAmerica/Products/index.html
- NOW Attendant Console (Netwise)—http://www.netwisecorp.com

Each attendant console type has limitations and can be deployed in various operating environments when used in a Hosted UCS platform. Table 1-2 describes the features and capabilities of each attendant console type.

Table 1-2 Attendant Console Types and Features

Feature	Cisco Attendant Console	ARC Connect	Netwise NOW
Can be used through firewalls	No	Yes	Yes
Suitable for use when a Cisco Unified CM cluster is being used for multiple customers	No	Yes	Yes
Supports multi-tenant capabilities	Not suitable for use in Hosted UCS multi-tenant environments	Requires a separate instance of the product per customer in Hosted UCS multi-tenant environments	Single server instance supports multi-tenant capabilities

Table 1-2 Attendant Console Types and Features (continued)

Feature	Cisco Attendant Console	ARC Connect	Netwise NOW
Multi-cluster capabilities	No capability to use across Cisco Unified CM clusters	The Hosted UCS 6.1(a) integration assumes single cluster operation for a given ARC connect server; therefore, a single customer needs to be constrained to a single cluster	Multi-cluster operation is supported
Provisioned through BVSM	Yes, in large enterprise deployment model only	No[1]	Yes

1. Provisioning support under development.

Billing

In multi-tenant business voice service, call detail records (CDRs) are generated by Cisco Unified CM system and the Cisco PGW. The Cisco Unified CM generates records for calls between phones in the same tenant. The Cisco Unified CM and the Cisco PGW generate records for calls between different tenants and for calls to the PSTN.

Cisco PGW billing records are produced by a Cisco Billing And Measurement Server (BAMS), which observes carrier-class accuracy and contains all necessary timestamps as well as the called party information delivered to the Cisco PGW and the calling party information sent from the Cisco PGW.

BVSM also provides a source of customer history data accessible through an ODBC link to allow Mediation systems to query BVSM for customer data. For example, this can be used to establish the ownership of a telephone number at a given time and to access customer account data.

For more information on Cisco BAMS, see the following URL: http://www.cisco.com/en/US/docs/voice_ip_comm/pgw/bams/3.13/guide/3132ch1.html

Application Servers

The Hosted UCS platform includes a number of application services, including voice mail, unified messaging, attendant console, conferencing, music-on-hold (MOH), auto attendant, and XML applications.

Business CPE

Cisco IOS CPE, such as Cisco 2600 and Cisco 3600 Series routers, provide ISDN PRI and BRI connections to business tenant telephony equipment. For PRI connections, the Cisco PGW can be used directly via D-channel backhaul and MGCP control. For BRI connections (and also for PRI if necessary), gateways can be configured as H.323 endpoints that register with an infrastructure gatekeeper.

Cisco Unified IP phones and analog telephone adaptors (ATAs) are used to provide devices in the business domain where Cisco Unified CM control is used. Cisco Integrated Access Devices (IADs) can also be used to provide analog telephony service to multi-dwelling/multi-office facilities.

Planning the Hosted Unified Communications Services Implementation

This section provides high-level guidance for planning a Hosted UCS implementation.

This section includes the following topics:

Note Hosted UCS is a Cisco end-to-end solution architecture. The official Hosted UCS design is fully described in the Hosted UCS platform Reference Network Design (SRND) documentation.

Planning Tasks

Before you begin building a Hosted UCS platform, Cisco recommends that you first complete these related planning tasks:

1. Create a bill of materials (BoM) that covers all equipment, and ensure that the correct software is available.
2. Create an architecture diagram, including a rack diagram.
3. Plan the component naming convention.
4. Plan the IP addressing and create a network design (subnets and VLANs).
5. Plan the classes of service.
6. Plan the dial plan requirements.
7. If SS7 connectivity is required, gather the SS7 PSTN interconnect information; for example, point codes, linksets, links, and CIC information.
8. Develop a set of BVSM bulk loaders.

Design Workbook

It is recommended that you maintain a design workbook document for each Hosted UCS platform. A sample Excel design workbook is available from VisionOSS BVSM and contains the various components described in this chapter.

Note Maintaining a design workbook document is a mandatory requirement for all Hosted UCS reference and production platforms.

Dial Plan

The Hosted UCS platform provides a standard dial plan model for common scenarios, such as service provider and multi-tenant. However, the planning and design of a customized, multi-tenant dial plan configuration is a critical requirement.

Dial plan customization includes the following:

- Inter-site calling prefix
- Outside calling prefix
- Location extension digits
- Site code digits
- Emergency number conventions
- E911 requirements
- DID/DDI number length
- DID/DDI number range allocation
- DDI/internal association format
- Area codes
- PSTN number requirements

Standard Equipment Naming Conventions

During the planning phase, you must define the naming convention to use for your equipment. Because of the integrated nature of the architecture, equipment names must be consistent across the platform.

The Cisco Unified CM server computer name is limited to 11 characters because the MOH name, which includes the Cisco Unified CM server name, must be a maximum of 15 characters. BVSM cannot statically configure Cisco Unified CM clusters where the server names are more than 11 characters, and this prevents the Hosted UCS platform from being configured further on the affected cluster.

Note The Cisco Unified CM server computer name is restricted to a maximum of 11 characters or less and cannot be altered later without a complete software reload (on Cisco Unified CM 4.x clusters).

Hardware, Network, and Software Requirements

This section summarizes the main hardware and software requirements for implementing the Hosted UCS platform. It includes the following topics:

Hardware Requirements

Before implementing Hosted UCS in a production environment, refer to the high-level and low-level detailed design guide and the build of materials (BOM) for the hardware requirements for a specific deployment. Refer to Appendix A, "Sample Hosted Unified Communications Services Build of Materials" to see a sample build of materials.

Each platform employs a unique rack layout that is dependent on the special requirements of each deployment. For instructions to install specific hardware components, refer to the hardware installation guide for each component.

Network Configuration and NAT

After the devices have been physically rack mounted, the network cabling can be completed by using a suitable Layer 3 switch such as the Cisco Catalyst 3560 Series switch. VLANs and subnets should be defined based on the Hosted UCS platform high-level and low-level design and your network configuration.

When the platform is implemented into a service provider network, it is also important to record the external IP address scheme used by Network Address Translation (NAT), so that remote access to the platform is also possible.

Customers sharing a single Hosted UCS-based service provider-hosted service may have internal IP address space ranges that overlap. NAT can be configured on the firewalls to translate the private (non-unique) addresses that are actually on the IP phones into addresses that are unique in the service provider (shared) domain.

Not only must these addresses be unique, they must be reachable from the individual customer networks to allow voice calls to flow between customers through the common address and security domain. To achieve this, routes that represent the address scheme used in the common address and security domain must be injected to each customer domain.

It is therefore important that no customer subscribing to the service is actually using the address space chosen for the IP address and security domain of the common service provider. The NAT pools that are configured on each customer firewall must be large enough to supply addresses to all the IP phones that are deployed in the specific customer.

Firewall Rules

Table 1-3 shows an example of the rules that can be implemented on the firewall to protect both the service provider from the customer and the customers from each other.

Table 1-3 Firewall Rules

Rule	Function
SCCP (TCP port 2000) to the Cisco Unified CMs only	Allows the Cisco Unified CMs to control the phones in the customer domain using the SCCP protocol
TAPI (CTIQBE) to the Cisco Unified CMs running CTI manager only	Used for third-party phone call control or for call control to TAPI-based softphones or software applications
HTTP (TCP port 80) to the Publisher Cisco Unified CMs and BVSM only	Required for access to phone XML services hosted on the Cisco Unified CM and BVSM (for example, directory), and also for customer self-provisioning of BVSM using a web browser

Table 1-3 Firewall Rules (continued)

Rule	Function
TFTP (UDP port 69) to the TFTP server only	Required to allow phones to download their configuration files and software updates
H.323 (and H.245), to the Cisco Unified CM and maybe the HSI and gatekeeper if customer site applications that use H.323 are required; for example, a customer site-located PSTN gateway using H.323	Required only to support H.323 endpoints in the customer address space; applications for this include H.323 video terminals and site-located PSTN gateways
RTP traffic UDP ports are opened dynamically by the ALG function within the firewall by MGCP, H.323, TAPI, SIP, and SCCP Call Control	Allows voice to flow between customers and to PSTN gateways and conference bridges hosted in the common domain
MGCP (UDP 2427/2428) to the Cisco PGW Various backhaul protocols also need to be allowed to the Cisco PGW depending on the L3 protocol at the gateway; for example, Sigtrans.	Allows the Cisco PGW to control customer site-located PSTN and PBX gateways

For more information about NAT and firewall issues when implementing the Hosted UCS platform, refer to the *Hosted Unified Communications Services, Release 6.1(a) SRND*.

Class of Service

You must define each class of service (CoS) and the naming convention to be used in the dial plan.

Table 1-4 shows an example of CoS and naming conventions.

Table 1-4 CoS and Naming Conventions

Phone Group	Proposed CoS	
	Service Name	**Description**
Unassigned	COS1InternalOnlyNo911	Internal access only (no 911 calls)
Unsecured common area	COS2AllCallsCMCAllButInternal	Internal + 911 + CMC all other calls
Secured common area	COS3AllCallsCMCInternational	All calls allowed (CMC for international)
User (client)	COS4AllCalls(NotIntersite)	All calls allowed (no 9-digit inter-site)
User (service provider)	COS5AllCalls	All calls allowed (+ 9-digit inter-site)

Software Requirements

This section summarizes the software requirements for the core components of the Hosted UCS platform. For information about software compatibility for all the supported platform components, refer to the *Hosted Unified Communications Services, Release 6.1(a)*, *Software Compatibility Matrix*.

Implementation and Configuration Summary

The following summarizes the basic tasks required to implement and configure the Hosted UCS platform, after completing the initial design and planning phase.

Implementation Step	Refer to
1. Install hardware and initialize device software.	Installation and hardware guides for each Hosted UCS platform component. The *Cisco Hosted Unified Communications Services, Release 6.1(a) Software Compatibility Matrix* summarizes the software requirements for each component.
2. Apply static configuration to each device.	Chapter 2, "Configuring Hosted Unified Communications Services Components Before Loading Bulk Data."
3. Load bulk data for each component.	Chapter 3, "Managing the Hosted Unified Communications Services Platform with VisionOSS BVSM."
4. Customize each component as necessary.	Configuration guides or online help for each Hosted UCS platform component. Chapter 3, "Managing the Hosted Unified Communications Services Platform with VisionOSS BVSM" summarizes the options provided by BVSM for configuring the Hosted UCS platform components.

CHAPTER 2

Configuring Hosted Unified Communications Services Components Before Loading Bulk Data

This chapter describes the manual configuration and static configuration scripts that must be applied to each Hosted Unified Communications Services Components (Hosted UCS) platform component before the component can be integrated into the Hosted UCS platform by using BVSM to load bulk data. For the supported Hosted UCS platform components and software versions, which are required for full support and functionality, refer to the *Cisco Hosted Unified Communications Services, Release 6.1(a) Software Compatibility Matrix*.

For information about configuring the components using BVSM to load bulk data, refer to Chapter 4, "Using Bulk Loaders for the Initial Configuration of Hosted Unified Communication Services Components."

This chapter includes the following sections:

Manually Configuring Cisco Unified Communications Manager

This section explains how to manually configure and verify the Cisco Unified CM parameters that cannot be provisioned through AVVID XML Layer Simple Object Access Protocol (AXL SOAP).

This section includes the following topics:

Cisco Unified Communications Manager Configuration

Some Cisco Unified CM configuration parameters cannot be provisioned through AXL SOAP. Due to this limitation, some manual configuration is required on the Cisco Unified CM servers before loading bulk data through BVSM.

This section describes the elements that must be configured using the Cisco Unified CM publisher. It includes the following topics:

Unless specifically mentioned, the configuration steps apply to Hosted UCS platforms based on either *Cisco Unified CM 4.2(3)* or *Cisco Unified CM 5.1(3)*.

Server Identity

This section describes how to specify identify the Cisco Unified CM server for integrating it into a Hosted UCS Release 6.1(a) platform.

To identify the Cisco Unified CM server, complete the following steps.

Procedure

Step 1 Go to **System > Server.**

Step 2 In the **Host Name/IP Address** field, enter the full IP address of the server.

For example, *10.131.4.2*.

Step 3 In the **Description** field, enter a description of the server.

For example, *e4c1p*

Step 4 Repeat Step 1 through Step 3 for each Cisco Unified CM in each cluster.

Date/Time Groups

Date/Time Groups define the time zones for the various devices that are connected to Cisco Cisco Unified CM. Each device exists as a member of only one device pool, and each device pool has only one assigned Date/Time Group. BVSM uses the international standard zoneinfo database, also called the tz database. In BVSM, the timezone names are all in the form *area/location*, where *area* is the name of a continent or ocean, and *location* is the name of a specific location (typically a city or small island) within a large region, such as "America/New_York."

To configure Date/Time groups, complete the following steps.

Procedure

Step 1 Go to **System > Date/Time Group**.

Step 2 Choose the correct values for each of the following settings:

- **Group Name**—Enter the name that you want to assign to the new date/time group; for example, *Europe-London*

- **Time Zone**—From the drop-down list box, choose the time zone for the group that you are adding, for example, *GMT Standard/Daylight Time*
- **Separator**—Choose the separator character to use between the date fields; for example, */*
- **Date Format**—Choose the date format for the date that appears on Cisco Unified IP Phones; for example, *D/M/Y*
- **Time Format**—Choose a 12-hour or 24-hour time format; for example, *24-hour*

Step 3 Repeat Step 2 for all required Date/Time Groups.

Note Group name format in BVSM is "Area/Location," (using a slash as the separator) while in Cisco Unified CM the format is "Area-Location" (using a dash as the separator).

Enterprise Parameters

Enterprise parameters define the default settings that apply to all devices and services in the same cluster.

To define the Enterprise parameters, complete the following steps.

Procedure

Step 1 Go to **System > Enterprise Parameters**.

Note In the **Enterprise Parameters Configuration** section, note that the **Advertise G722 Codec field** is disabled; this applies only to Cisco Unified CM 5.1(3).

Step 2 Define the correct value for the following setting in the **Phone URL Parameters** section:

URL Directories—This parameter specifies the URL that Cisco Unified IP Phone models use when you click the Directory button. This should point to the virtual IP address of the BVSM server (*not* the Cisco Unified CM server).

- For Cisco Unified CM 4.2(3):

  http://*virtual_IP_address_of_BVSM_server*/bvsmweb/directoryservices.cgi?device=#DEVICENAME#

  For example:

  http://10.120.3.66/bvsmweb/directoryservices.cgi?device=#DEVICENAME#

- For Cisco Unified CM 5.1(3):

  http://*virtual_IP_address_of_BVSM_server*:8080/bvsmweb/directoryservices.cgi?device=#DEVICENAME#

  For example:

  http://10.120.3.66:8080/bvsmweb/directoryservices.cgi?device=#DEVICENAME#

Step 3 If the Hosted UCS platform network does not use DNS services, replace the host name of the Cisco Unified CM Publisher Server name with its IP address in the following fields:

- In the **URL Help field**, in the General Parameters section:

  For Cisco Unified CM 4.2(3):

  http://*IP_address_of_Publisher_server*/help

  For example, *http://10.131.4.2/help*

- In the **CDR UNC Path** field, in the CDR Parameters section:

  For Cisco Unified CM 4.2(3):

  IP_address_of_Publisher_server\CDR

  For example, *http:\\10.131.4.2\CDR*

- In the **URL Authentication**, **URL Directories**, and **URL Services** fields, in the Phone URL Parameters section:

  For Cisco Unified CM 4.2(3):

  - http://*IP_address_of_Publisher_server*/CCMCIP/authenticate.asp

    For example, *http://10.131.4.2/CCMCIP/authenticate.asp*

  - http://*IP_address_of_Publisher_server*/CCMCIP/GetTelecasterHelpText.asp

    For example, *http://10.131.4.2/CCMCIP/GetTelecasterHelpText.asp*

  - http://*IP_address_of_Publisher_server*/CCMCIP/getservicesmenu.asp

    For example, *http://10.131.4.2/CCMCIP/getservicesmenu.asp*

- For Cisco Unified CM 5.1(3):

  - http://*IP_address_of_Publisher_server*:8080/ccmcip/authenticate.jsp

    For example, *http://10.132.4.2:8080/ccmcip/authenticate.jsp*

  - http://*IP_address_of_Publisher_server*:8080/ccmcip/GetTelecasterHelpText.jsp

    For example, *http://10.132.4.2:8080/ccmcip/GetTelecasterHelpText.jsp*

  - http://*IP_address_of_Publisher_server*:8080/ccmcip/getservicesmenu.jsp

    For example, *http://10.132.4.2:8080/ccmcip/getservicesmenu.jsp*

Automated Alternate Routing Group

Automated alternate routing (AAR) provides a mechanism to reroute calls through the PSTN or other network by using an alternate number when Cisco Unified CM blocks a call due to insufficient location bandwidth.

To define the AAR parameter, complete the following steps.

Procedure

Note This procedure applies only to Cisco Unified CM 5.1(3) because in Cisco Unified CM 4.2(3) this parameter is provisioned through BVSM.

Step 1 Go to **Call Routing > AAR Group**.

Step 2 Specify the correct values for the following parameters:

AAR Group Name: `defaultaar`

Prefix Digits: Leave this blank

Note The `defaultaar` AAR group is not required by Cisco Unified CM 5.x. However, when the bulk data is loaded for the cluster, BVSM returns an error message and stops the bulk data loading if the parameter is missing.

Conference Bridge

Conference bridge configuration is only required if one or more conference bridges are to be integrated into the Hosted UCS platform.

Conference Bridge for Cisco Unified CM can be implemented as a software or hardware application. It allows both ad hoc and meet-me voice conferencing. Each conference bridge can host several simultaneous, multiparty conferences. For details about how to configure the conference bridge for integration into the Hosted UCS 6.1(a) platform, refer to the following websites:

- For Cisco Unified CM 4.2(3): http://cisco.com/en/US/docs/voice_ip_comm/cucm/admin/4_2_3/ccmcfg/b04cnbrg.html

- For Cisco Unified CM 5.1(3): http://cisco.com/en/US/docs/voice_ip_comm/cucm/admin/5_1_3/ccmcfg/b04cnbrg.html
- For Cisco Unified CM 6.1(2):

  http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/admin/6_1_1/ccmcfg/bccm.pdf

Transcoder

Transcoder configuration is only required if one or more transcoders are to be integrated into the Hosted UCS platform. A transcoder takes the stream of one codec and transcodes (converts) it from one compression type to another compression type.

The Cisco Unified CM invokes a transcoder on behalf of endpoint devices when the two devices are using different codecs and would normally not be able to communicate. When inserted into a call, the transcoder converts the data streams between the two disparate codecs to enable communications between them.

The Media Resource Manager (MRM) has responsibility for resource registration and resource reservation of transcoders within a Cisco Unified CM cluster. Cisco Unified CM simultaneously supports registration of both the Media Termination Point (MTP) and transcoders and concurrent MTP and transcoder functionality within a single call.

For details about how to configure a transcoder for integration into the Hosted UCS 6.1(a) platform, refer to the following websites:

- For Cisco Unified CM 4.2(3): http://cisco.com/en/US/docs/voice_ip_comm/cucm/admin/4_2_3/ccmcfg/b04trans.html
- For Cisco Unified CM 5.1(3): http://cisco.com/en/US/docs/voice_ip_comm/cucm/admin/5_1_3/ccmcfg/b04trans.html
- For Cisco Unified CM 6.1(2):

  http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/admin/6_1_1/ccmcfg/bccm.pdf

Cisco Unified IP Phone Services

Users can subscribe to Cisco Unified IP Phone Services at each site, which vary depending on the deployment. This section describes the manual configuration required for the following services:

- Login/Logout Services for Extension Mobility, page 2-9
- Roaming Login/Logout Services for BVSM User Roaming, page 2-10
- Cisco Unified IP Phone XML Services, page 2-11

Login/Logout Services for Extension Mobility

To configure Login/Logout Services for Extension Mobility, complete the following steps.

Procedure

Step 1 Choose one of the following options:

- For Cisco Unified CM 4.2(3):

  Go to **Feature > Cisco Unified IP Phone Services**

- For Cisco Unified CM 5.1(3) and 6.1(2):

  Go to **Device > Device Settings > Phone Services**

Step 2 Add the Cisco Unified IP Phone Service using the following settings:

- For Cisco Unified CM 4.2(3):

  Service Name: `Login/Logout`

  Service Description: `Extension Mobility Service`

  Service URL:
  http://*Publisher_IP_Address*/emapp/EMAppServlet?device=#DEVICENAME#

  For example,
  http://10.131.4.2/emapp/EMAppServlet?device=#DEVICENAME#

- For Cisco Unified CM 5.1(3) and 6.1(2):

  Service Name: `Login/Logout`

Service Name (ASCII Format): `Login/Logout`

Service Description: `Extension Mobility Service`

Service URL:
http://*Publisher_IP_Address*:8080/emapp/EMAppServlet?device=#DEVICENAME#

For example,
http://10.132.4.2:8080/emapp/EMAppServlet?device=#DEVICENAME#

Roaming Login/Logout Services for BVSM User Roaming

Roaming Login/Logout Services for BVSM User Roaming uses Cross Cluster Forwarding, and allows users to login or logout at remote locations.

To configure Roaming Login/Logout Services for BVSM user roaming, complete the following steps.

Procedure

Step 1 Choose one of the following options:

- For Cisco Unified CM 4.2(3):

  Go to **Feature > Cisco Unified IP Phone Services**

- For Cisco Unified CM 5.1(3) and 6.1(2):

  Go to **Device > Device Settings > Phone Services**

Step 2 Specify the appropriate values for the following settings:

- For Cisco Unified CM 4.2(3):

  Service Name: `Roaming Login/Logout`

  Service Description: `Extension Mobility Service`

  Service URL:
  http://*BVSM_Virtual_IP_Address*/bvsmweb/bvsmroaming.cgi?device=#DEVICENAME

  For example,
  http://10.120.3.62/bvsmweb/bvsmroaming.cgi?device=#DEVICENAME#

- For Cisco Unified CM 5.1(3) and 6.1(2):

  Service Name: `Roaming Login/Logout`

  Service Name (ASCII Format): `Roaming Login/Logout`

  Service Description: `Extension Mobility Service`

  Service URL:
  http://*BVSM_Virtual_IP_Address*:8080/bvsmweb/bvsmroaming.cgi?device=#DEVICENAME

  For example,
  http://10.120.3.62:8080/bvsmweb/bvsmroaming.cgi?device=#DEVICENAME#

Cisco Unified IP Phone XML Services

This section describes the configuration required to enable Cisco Unified IP Phone XML Services.

To configure Cisco Unified IP Phone XML Services, complete the following steps.

Procedure

Step 1 Choose one of the following options:

- For Cisco Unified CM 4.2(3):

  Go to **Feature > Cisco Unified IP Phone Services**

- For Cisco Unified CM 5.1(3) and 6.1(2):

  Go to **Device > Device Settings > Phone Services**

Step 2 Specify the appropriate values for the following settings:

- For Cisco Unified CM 4.2(3):

  Service Name: `Phone Services`

  Service Description: `Phone Services`

Service URL:
http://*BVSM_Virtual_IP_Address*/bvsmweb/bvsmservices.cgi?device=#DEVICENAME

For example,
http://10.120.3.62/bvsmweb/bvsmservices.cgi?device=#DEVICENAME#

- For Cisco Unified CM 5.1(3) and 6.1(2):

  Service Name: `Phone Services`

  Service Name (ASCII Format): `Phone Services`

  Service Description: `Phone Services`

  Service URL:
  http://*BVSM_Virtual_IP_Address*:8080/bvsmweb/bvsmservices.cgi?device=#DEVICENAME

  For example,
  http://10.120.3.62:8080/bvsmweb/bvsmservices.cgi?device=#DEVICENAME#

Template Configuration

This section describes the manual configuration required to enable the following templates that are provided by Cisco Unified CM:

- Phone Button Template, page 2-12
- Softkey Template, page 2-14

Phone Button Template

Cisco Unified CM includes several default phone button templates. When adding phones, you can assign one of these templates to the phones or create a new template. Creating and using templates provides a fast way to assign a common button configuration to a large number of phones. A number of default phone button templates are loaded into BVSM during initial setup.

If you want to use any non-standard phone button templates, you need to define them in BVSM, and also need to add them manually into Cisco Unified CM. This section describes how to add non-standard phone button templates.

Ensure that the required number of lines are set up on the template settings and that each phone button template is cloned from the standard phone type for each variant. For example, confirm that the Standard 7960-2line is based on the standard 7960 template, and set the number of lines to 2.

Note The BVSM InitPBX Load fails if Phone Button Templates exists as a BVSM Service Setting but does not exist in the Cisco Unified CM. If a validation failure occurs, either add the missing phone button template into the Cisco Unified CM, or delete unnecessary phone button templates from BVSM.

Phone button templates cannot be deleted from the BVSM database without first disconnecting the dial plans from the hardware sets. To do this, use the BVSM option **Dial Plan Tools > Hardware Sets > Associated Dial plans**. Remember to reconnect the required dial plans afterwards.

When deploying the Cisco Unified CM 4.2(3) with Cisco Unified CM 5.1(3) or Cisco Unified CM 6.1(2) clusters on the same platform, it is necessary to add additional standard phone button templates on the Cisco Unified CM 4.2(3) cluster.

BVSM does not distinguish between different Cisco Unified CM versions, and therefore during BVSM InitPBX Load it verifies that all phone button templates configured in BVSM also exist in Cisco Unified CM. The BVSM API worksheet for the 6.1(a) model loader lists all the phone button templates that need to be added to Cisco Unified CM 4.2(3) clusters.

To configure non-standard phone button templates, complete the following steps.

Procedure

Step 1 Go to **Device > Device Settings > Phone Button Template**.

Step 2 Specify the appropriate values for the following parameters:

- **Phone Button Template**: *required_phone_button_template*

  For example, *Standard 7960*

  Use the following setting:

- **Button Template Name**: *unique_button_template_name*

  For example, *Standard 7960-2lines*

Step 3 Configure the required number of buttons:

- **Feature**: Choose the function of the phone button that you want to specify in the template

  For example, *Line*

- **Label**: Enter a description of the button

  For example, *Line 1*

Softkey Template

Softkey template configuration allows the administrator to manage softkeys that the Cisco Unified IP Phones (such as model 7960) support.

By default two softkey templates are configured in BVSM: Softkey_Basic and Softkey_Advanced. If these templates are not required, they can be deleted from the BVSM (in **Setup Tools > Service Types**). The list of Softkey templates in BVSM has to correspond with the list of Softkey Templates in all Cisco Unified CM clusters.

To configure a softkey template, complete the following steps.

Procedure

Step 1 To add a softkey template to BVSM, go to **Setup Tools > Service Types**.

Step 2 To add Softkey templates to Cisco Unified CM clusters, go to **Device > Device Settings > Softkey Template**.

Step 3 Create a softkey template based on: *available_softkey_template*.

For example, *Standard User*

Step 4 Configure the following setting:

Softkey Template Name: *unique_softkey_template_name*

For example, *Softkey_Advanced*

Step 5 After creating the new softkey template, add additional application softkeys, and configure softkey positions.

For detailed instructions refer to the appropriate Cisco Unified CM administration guide.

Note If different softkey templates are required on different clusters, load the softkey templates after loading the Cisco Unified CM.

Verifying Cisco Unified Communications Manager Configuration

This section describes how to verify that the Cisco Unified CM cluster configuration, required before loading the bulk data using BVSM, is complete.

Note Confirm that the settings are correct.

To verify the Cisco Unified CM configuration, complete the following steps.

Procedure

Step 1 Go to **Publisher – Tools > Service Activation** and turn on the following services:

- Cisco RIS Data Collector
- Cisco Database Layer Monitor
- Cisco Serviceability Reporter
- Cisco Extension Mobility
- Cisco Unified CM (if Publisher used as a back-up subscriber)
- Cisco TFTP (if required on Publisher server)
- Cisco IP Voice Streaming (if required for MoH and announcements)
- Cisco CTIManager (if used as a backup subscriber)

Step 2 Go to **Subscriber/TFTP/MOH Server – Tools > Service Activation** and turn on the following services:

- Cisco RIS Data Collector
- Cisco Database Layer Monitor
- Cisco Serviceability Reporter

- Cisco Telephony Call Dispatcher
- Cisco Unified CM (if used as a subscriber)
- Cisco TFTP (if required)
- Cisco IP Voice Streaming (if required for MoH and announcements)
- Cisco CTIManager (if used as a subscriber)
- Cisco Extended Functions (on multi-tenant clusters, not large enterprise)

Step 3 Verify the following from the Cisco Unified CM Publisher Administration **System** menu:

- Cisco Servers—Must be IP addresses (not hostnames).
- Cisco Unified CM(s)—Must be IP addresses (not hostnames).
- Cisco Unified CM Groups—Should show default.
- Date/Time Group—Should include DTG required by BVSM (set within Cisco Unified CM model loader under global settings). For example, CMLocal, Europe-London, Europe-Copenhagen, America-New_York, or as defined by the project team.
- Region—Should show default.
- Device Pools—Should show default.
- Enterprise Parameters—Set “Enable Dependency Records” to “True” to support dependency record function (on test platforms).
- Confirm that IP addresses rather than hostnames are used in the Phone URL Parameters.
- Also confirm that the Directories URL points to the bvsmweb service at the virtual IP address of the BVSM cluster (not the Publisher).

Note the following example, where Publisher = 10.10.1.3 and BVSM-VIP = 10.10.6.16:

- URL Authentication—*http://10.10.1.3/CCMCIP/authenticate.asp*
- URL Directories—*http://10.10.6.16/bvsmweb/directoryservices.cgi?device=#DEVICENAME#*
- URL Information—*http://10.10.1.3/CCMCIP/GetTelecasterHelpText.asp*
- URL Services—*http://10.10.1.3/CCMCIP/getservicesmenu.asp*

Step 4 Verify the following from the Cisco Unified CM Publisher Administration **Route Plan** menu:

a. AAR Group—Should include "defaultaar" (supports alternative routing). Add if necessary.

b. Check that there are no unneeded partitions.

c. Check that there are no unneeded calling search spaces.

d. Check that Route Plan Report is clear.

Step 5 Verify the following from the Cisco Unified CM Publisher Administration **Services** menu:

a. Check that the MOH Server name is MOH_*winshostname*.

For example, MOH_MC-M3-C1-P; that is, not MOH_10.10.1.3.

Note Note that there is a maximum of 15 characters in this name, so *winshostname* must be 11 characters or less on Cisco Unified CM 4.x clusters. This restriction is relaxed on Unified 5.x clusters.

b. Check that at least one conference bridge has been set up on each cluster and that the name(s) of the conference bridge are the same as that entered into BVSM. For example,

- Host Server—10.10.1.3
- Conference Bridge Type—Cisco Conference Bridge Software
- Conference Bridge Name—MC-M3-CONF-1
- Device Pool—Default

Step 6 Verify the following from the Cisco Unified CM Publisher Administration **Features** menu:

In IP Phone Services, verify that the following service has been added:

- For Single Enterprise User Mobility:

  - IP Phone Service—Login/Logout
- Description—Text description
  - Service URL—*http://10.11.226.73/emapp/EMAppServlet?device=#DEVICENAME#* (where the IP address is the IP address of the Cisco Unified CM cluster publisher)
- For Multi-Tenant User Mobility:
  - IP Phone Service—Roaming Login/Logout
  - Description—User Mobility Service provided by BVSM
  - Service URL—*http://xxxxx/bvsmweb/bvsmroaming.cgi?device=#DEVICENAME#* (where xxxxxx is the virtual IP address, or DNS name if used, of the BVSM cluster)
- For IP Phone Service:
  - Phone Services (or as defined in the BVSM Cisco Unified CM model loader "global settings" line)
  - Description—XML Applications provided by BVSM
  - Service URL—*http://xxxxx/bvsmweb/bvsmservices.cgi?device=#DEVICENAME#* (where xxxxxx is the virtual IP address, or DNS name if used, of the BVSM cluster providing the corporate directory service providing the corporate directory service).

Step 7 Verify the following Service Parameters from Cisco Unified CM Publisher Administration:

- Check the following Cisco Extension Mobility Settings and adjust as required:
  - Enforce Max Log in Time—False
  - Multiple Login Behavior—Auto Logout
  - Alphanumeric User ID—True
  - Remember last login—True (on reference platforms)

Step 8 Verify the following from the Cisco Unified CM Publisher Administration **Device** menu:

a. Ensure that all the Device Profiles have been deleted.

Note These are added automatically by BVSM.

b. Ensure that the required phone button templates have been added. For e*xample:*

- *BVSM 7940*
- *BVSM 7970*
- *BVSM 7971*
- *BVSM 7960-14*
- *BVSM 7960-28*
- *BVSM 7961-14*
- *BVSM 7961-28*
- *BVSM 7970-14*
- *BVSM 7970-28*
- *BVSM 7971-14*
- *BVSM 7971-28*

Note Additional phone button templates may be required on CCM5.x clusters; for example, Standard 7941, Standard 7961 in addition to Standard 7941 SCCP and Standard 7961 SCCP.

c. Ensure that additional softkey templates have been added as required by BVSM. The following softkey templates are typically added as examples:

- *Softkey_Basic*
- *Softkey_Advanced*

You can add them by copying the “Standard User” template and then change the settings. In the short term, these can have the same configuration as the “Standard User” softkey template.

Note If the default Softkey_Basic and Softkey_Advanced templates are not required, delete them from the BVSM "Service Types" within BVSM Setup Tools (accessible as a BVSM super user only).

Applying Static Configuration to the Cisco PGW

This section explains how to apply the static configuration to the Cisco PGW. This is required before using BVSM to load the bulk data that integrates the Cisco PGW into the Hosted UCS platform.

This section contains the following topics:

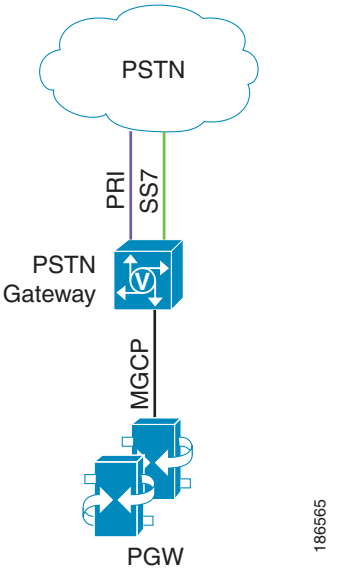
Central Gateway Cisco PGW Breakout

One of the main features of the Cisco PGW in Hosted UCS 6.1(a) is routing calls to and from the PSTN. The Central Gateway Cisco PGW PSTN breakout is achieved using the following signalling:

- SS7
- PRI (MGCP controlled)

This is shown in Figure 2-1:

Figure 2-1 Central Gateway Cisco PGW PSTN



Depending on the deployment, you must provision a number of settings on the Cisco PGW, including the following:

- External Nodes
- Session Sets
- MGCP Paths
- IPFAS Paths
- D-Channels
- IP Links
- DPCs
- OPCs
- APCs
- Linksets
- SS7 Routes
- SS7 Paths

- IP Routes

For detailed information, refer to the *Cisco Media Gateway Controller Software Release 9 Provisioning Guide*.

The Route List to PSTN for each country must be provisioned on the interface between the Cisco PGW and the PSTN, using the following parameters:

prov-add:rtlist:name="rtlist2pstn*Country_code***",rtname="route2pstn",distrib="OFF"**,

For example:

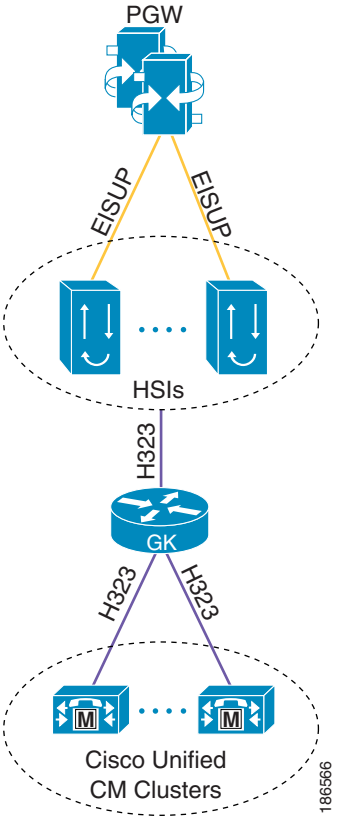
prov-add:rtlist:name="rtlist2pstn1",rtname="route2pstn1",distrib="OFF"

This configuration is required for each supported country.

Cisco PGW, HSI and Cisco Unified Communications Manager Interface Configuration

In Hosted UCS Release 6.1(a), the interface between the Cisco PGW/HSI and the Cisco Unified CM clusters is an H323 trunk (provisioned as an H.225 gatekeeper controlled trunk on Cisco Unified CM. The interface between the Cisco PGW and HSI is an EISUP trunk, as shown in Figure 2-2.

Figure 2-2 Cisco PGW/HSI/Cisco Unified Communications Manager Interfaces



A number of settings must be provisioned on the Cisco PGW for the interface between the Cisco PGW and HSIs, such as the following:

- External nodes
- EISUP paths
- IP links

For detailed information, refer to the *Cisco Media Gateway Controller Software Release 9 Provisioning Guide*.

To perform the provisioning required on the Cisco PGW, complete the following steps.

Procedure

Step 1 Configure the ICCM dial plan.

ICCM is the dial plan which needs to be attached to the HSI trunk groups. This dial plan will be accessed when calls are passed from the HSIs to the PGW.

To add the ICCM dial plan, use the following parameter:

```
numan-add:dialplan:custgrpid="ICCM", OVERDEC="YES"
```

Step 2 Configure the Trunk Group for each HSI.

To add the trunk group, enter the following command:

prov-add:trnkgrp:name="*trnkgrp_name***",clli="***clli_name***",svc="***signaling_svc***",type="***type***",qable=n**

For example:

```
prov-add:trnkgrp:name="1001",clli="hsi",svc="eisup-hsi-ent4a",type="IP
",qable="n"
```

Step 3 Configure the Routing Trunk Group for each HSI.

To add the routing trunk group, enter the following command:

prov-add:rttrnkgrp:name="*rttrnkgrp_name***",type=4,reattempts=0,queuing=0,cutthrough=3,resincperc=0**

For example:

```
prov-add:rttrnkgrp:name="1001",type=4,reattempts=0,queuing=0,cutthroug
h=3,resincperc=0
```

This configuration is required for each HSI.

Step 4 Configure the route to the HSI.

To add the route, enter the following command:

prov-add:rttrnk:weightedTG="OFF",name="route2hsi",trnkgrpnum=*rttrnkgrp_name*

For example:

```
prov-add:rttrnk:weightedTG="OFF",name="route2hsi",trnkgrpnum=1001
```

To associate routing trunk groups for the remaining HSIs to the “route2hsi” route, add the following for each remaining HSI:

prov-ed:rttrnk:name=”route2hsi”,trnkgrpnum=*rttrnkgrp_name*

For example:

```
prov-ed:rttrnk:name=”route2hsi”,trnkgrpnum=1002
```

Step 5 Configure the route list to the HSI.

To add the route list, enter the following command:

prov-add:rtlist:name=”rtlist2hsi”,rtname=”route2hsi”,distrib=”OFF”

Step 6 Configure the following HSI Trunk Group Properties:

- CustGrpId
- AllowH323Hairpin
- FAXsupport
- GatewayRBToneSupport

Other parameters may be necessary depending on the deployment.

To add the trunk group properties, use the following parameters:

- **prov-add:trnkgrpprop:name=”***rttrnkgrp_name***”**
- **custgrpid=”ICCM”**
- **“AllowH323Hairpin”=1**
- **“FAXsupport”=1**
- **“GatewayRBToneSupport”=1**

For example:

```
prov-add:trnkgrpprop:name=”1001”,custgrpid=”ICCM”,”AllowH323Hairpin”=1
,”FAXsupport”=1,”GatewayRBToneSupport”=1
```

Step 7 Repeat this step for each HSI.

ILGW Dial Plan

The ILGW Dial Plan is used to route calls from Local Gateways. Because this dial plan is provisioned every time a country is added using BVSM, it must be manually created. To add the ILGW dial plan, enter the following command:

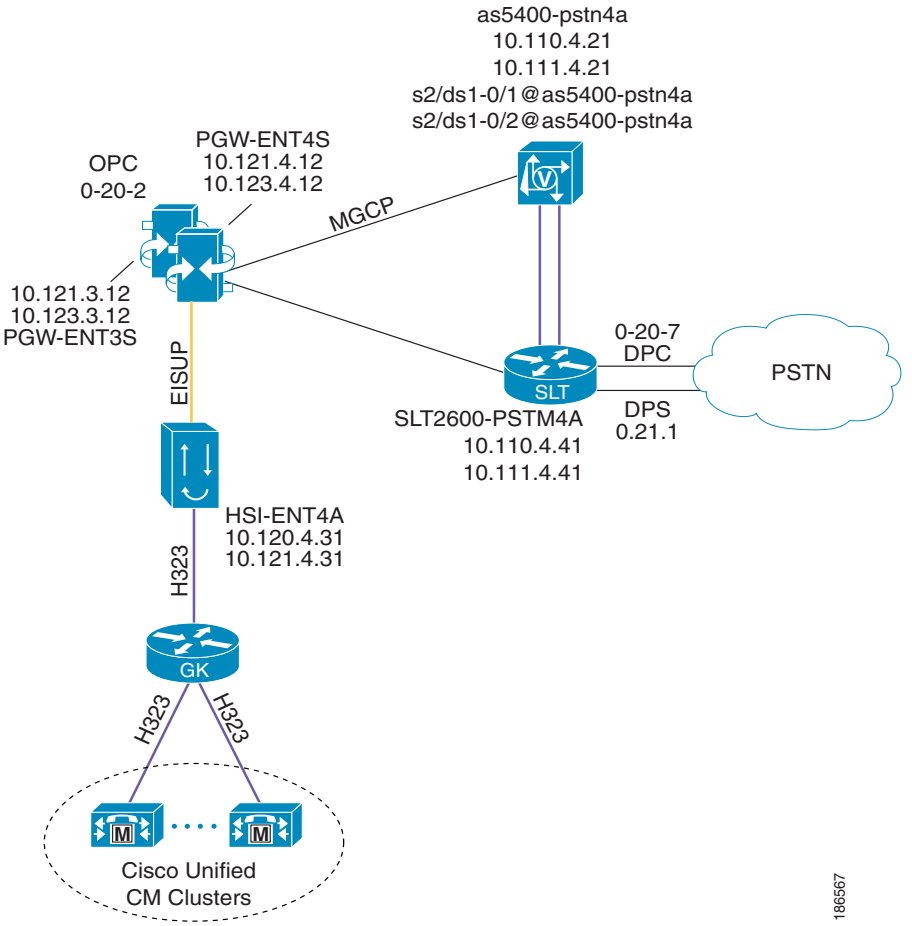
```
numan-add:dialplan:custgrpid="ILGW", OVERDEC="No"
```

Example Cisco PGW Static Configuration

This section provides the following sample static configurations for the Cisco PGW within a Hosted UCS 6.1(a) platform:

These example configurations are based on the network illustrated in Figure 2-3.

Figure 2-3 Sample Network



The following examples illustrate the static configuration for each of the following files:

Example 2-1 config.mml

```
prov-add:OPC:NAME="opc",DESC="OPC",NETADDR="0.20.2",NETIND=2,TYPE="TRU
EOPC"
prov-add:DPC:NAME="dpc-pstn101404",DESC="Point Code to PSTN1 area code
01404",NETADDR="0.20.7",NETIND=2
```

```
prov-add:DPC:NAME="dpc-pstn201404",DESC="Point Code to PSTN2 area code
01404",NETADDR="0.21.1",NETIND=2
prov-add:SS7PATH:NAME="ss7p-pstn1",DESC="SS7 Signaling Service to
PSTN1",MDO="Q761_BASE",CUSTGRPID="0000",SIDE="network",DPC="dpc-pstn10
1404",OPC="opc",M3UAKEY="",ORIGLABEL="",TERMLABEL=""
prov-add:SS7PATH:NAME="ss7p-pstn2",DESC="SS7 Signaling Service to
PSTN2",MDO="Q761_BASE",CUSTGRPID="0000",SIDE="network",DPC="dpc-pstn20
1404",OPC="opc",M3UAKEY="",ORIGLABEL="",TERMLABEL=""
prov-add:EXTNODE:NAME="as5400-pstn4a",DESC="External Node
5400",TYPE="AS5400",ISDNSIGTYPE="N/A",GROUP=0
prov-add:EXTNODE:NAME="slt2600-pstn4a",DESC="SLT",TYPE="SLT",ISDNSIGTY
PE="N/A",GROUP=0
prov-add:EXTNODE:NAME="hsi-ent4a",DESC="City 4 ent HSI
a",TYPE="H323",ISDNSIGTYPE="N/A",GROUP=0
prov-add:SESSIONSET:NAME="sset-slt",EXTNODE="slt2600-pstn4a",IPADDR1="
IP_Addr1",PEERADDR1="10.110.4.41",PORT=7001,PEERPORT=7001,TYPE="BSMV0"
,IPADDR2="IP_Addr2",PEERADDR2="10.111.4.41"
prov-add:EISUPPATH:NAME="eisup-hsi-ent4a",DESC="Eisuppath signaling
service for
HSI-ENT4a",EXTNODE="hsi-ent4a",CUSTGRPID="ICCM",ORIGLABEL="",TERMLABEL
=""
prov-add:MGCPPATH:NAME="sigmgcp-5400",DESC="Mgcppath signaling service
to 5400",EXTNODE="as5400-pstn4a"
prov-add:LNKSET:NAME="lnkset-pstn1",DESC="Lnkset to
PSTN1",APC="dpc-pstn101404",PROTO="SS7-ITU",TYPE="IP"
prov-add:LNKSET:NAME="lnkset-pstn2",DESC="Lnkset to
PSTN2",APC="dpc-pstn201404",PROTO="SS7-ITU",TYPE="IP"
prov-add:IPLNK:NAME="iplnk2-5400",DESC="Iplnk2 to
5400",SVC="sigmgcp-5400",IPADDR="IP_Addr2",PORT=2427,PEERADDR="10.111.
4.21",PEERPORT=2427,PRI=2,IPROUTE=""
prov-add:IPLNK:NAME="iplnk1-5400",DESC="Iplnk1 to
5400",SVC="sigmgcp-5400",IPADDR="IP_Addr1",PORT=2427,PEERADDR="10.110.
4.21",PEERPORT=2427,PRI=1,IPROUTE=""
prov-add:IPLNK:NAME="iplnk-hsi-ent4a",DESC="Iplnk for
HSI-ENT4A",SVC="eisup-hsi-ent4a",IPADDR="IP_Addr1",PORT=8003,PEERADDR=
"10.120.4.31",PEERPORT=8003,PRI=1,IPROUTE=""
prov-add:SS7ROUTE:NAME="ss7r-pstn1",DESC="SS7 Route to
PSTN1",OPC="opc",DPC="dpc-pstn101404",LNKSET="lnkset-pstn1",PRI=1
prov-add:SS7ROUTE:NAME="ss7r-pstn2",DESC="SS7 Route to
PSTN2",OPC="opc",DPC="dpc-pstn201404",LNKSET="lnkset-pstn2",PRI=1
prov-add:C7IPLNK:NAME="c7iplnk-pstn1",DESC="C7Iplink",LNKSET="lnkset-p
stn1",SLC=0,PRI=1,TIMESLOT=2,SESSIONSET="sset-slt"
prov-add:C7IPLNK:NAME="c7iplnk-pstn2",DESC="C7Iplink",LNKSET="lnkset-p
stn2",SLC=0,PRI=1,TIMESLOT=0,SESSIONSET="sset-slt"
prov-add:DNSPARAM:CacheSize="500",DnsServer1="0.0.0.0",DnsServer2="0.0
.0.0",KeepAlive="30",Policy="HIERARCHY",QueryTimeout="1000",TTL="3600"
```

```
prov-ed:accrespcat:name="default",acl1drcant=50,acl1drskip=20,acl1arca
nt=50,acl1arskip=20,acl2drcant=90,acl2drskip=10,acl2arcant=90,acl2arsk
ip=10,acl3drcant=100,acl3drskip=0,acl3arcant=100,acl3arskip=0
prov-ed:mclcallreject:name="mcl1",callreject=25
prov-ed:mclcallreject:name="mcl2",callreject=50
prov-ed:mclcallreject:name="mcl3",callreject=100
prov-ed:mclthreshold:name="callrate",mcl1onset=0,mcl1abate=0,mcl2onset
=0,mcl2abate=0,mcl3onset=0,mcl3abate=0
prov-ed:mclthreshold:name="cpu",mcl1onset=82,mcl1abate=75,mcl2onset=90
,mcl2abate=77,mcl3onset=95,mcl3abate=85
prov-ed:mclthreshold:name="memoryaddress",mcl1onset=84,mcl1abate=80,mc
l2onset=88,mcl2abate=82,mcl3onset=93,mcl3abate=85
prov-ed:mclthreshold:name="queuelen",mcl1onset=75,mcl1abate=60,mcl2ons
et=80,mcl2abate=70,mcl3onset=85,mcl3abate=75
prov-ed:mclthreshold:name="virtualmemory",mcl1onset=80,mcl1abate=75,mc
l2onset=85,mcl2abate=80,mcl3onset=90,mcl3abate=80
prov-add:sigsvcprop:NAME="eisup-hsi-ent4a",H323AdjunctLink="1"
prov-add:sigsvcprop:NAME="sigmgcp-5400",mgcpHeartbeatInterval="10"
prov-add:files:name="tkgfile",file="static_conf_51B_EOTR/export_trkgrp
.dat",action="IMPORT"
prov-add:files:name="bcfile",file="static_conf_51B_EOTR/export_trunk.d
at",action="IMPORT"
```

Example 2-2 routing.mml

```
prov-add:rttrnkgrp:name="1001",type=4,reattempts=0,queuing=0,cutthroug
h=2,resincperc=0
prov-add:rttrnkgrp:name="2001",type=1,reattempts=1,queuing=0,cutthroug
h=2,resincperc=0
prov-add:rttrnk:weightedTG="OFF",name="route2hsi",trnkgrpnum=1001
prov-add:rttrnk:weightedTG="OFF",name="route2pstn",trnkgrpnum=2001
prov-add:rtlist:name="rtlist2hsi",rtname="route2hsi",distrib="OFF"
prov-add:rtlist:name="rtlist2pstn1",rtname="route2pstn",distrib="OFF"
```

Example 2-3 iccm.mml

```
numan-add:dialplan:custgrpid="ICCM", OVERDEC="YES"
numan-ed:resulttable:custgrpid="ICCM",name="CSCOADRST1",resulttype="RE
TRY_ACTION",dw1="Reattempt",setname="CSCOADRST1"
numan-ed:resulttable:custgrpid="ICCM",name="CSCOADRST2",resulttype="RE
TRY_ACTION",dw1="Redirect",setname="CSCOADRST2"
numan-ed:cause:custgrpid="ICCM",causevalue=1,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=11,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=26,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=29,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=38,setname="CSCOADRST1"
```

```
numan-ed:cause:custgrpid="ICCM",causevalue=41,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=44,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=49,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=50,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=58,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=69,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=87,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=94,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=107,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=118,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ICCM",causevalue=145,setname="CSCOADRST2"
```

Example 2-4 ilgw.mml

```
numan-add:dialplan:custgrpid="ILGW", OVERDEC="NO"
numan-ed:resulttable:custgrpid="ILGW",name="CSCOADRST1",resulttype="RE
TRY_ACTION",dw1="Reattempt",setname="CSCOADRST1"
numan-ed:resulttable:custgrpid="ILGW",name="CSCOADRST2",resulttype="RE
TRY_ACTION",dw1="Redirect",setname="CSCOADRST2"
numan-ed:cause:custgrpid="ILGW",causevalue=1,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=11,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=26,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=29,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=38,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=41,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=44,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=49,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=50,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=58,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=69,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=87,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=94,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=107,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=118,setname="CSCOADRST1"
numan-ed:cause:custgrpid="ILGW",causevalue=145,setname="CSCOADRST2"
```

Example 2-5 properties.dat

```
sigmgcp-5400.mgcpHeartbeatInterval = 10
ss7-i-1.chkPtPort = 2001
tg-1001.AllowH323Hairpin = 1
tg-1001.CLLI = hsi
tg-1001.CustGrpId = ICCM
tg-1001.FAXsupport = 1
tg-1001.GatewayRBToneSupport = 1
tg-2001.CLLI = pstn
tg-2001.FAXsupport = 1
```

```
tg-2001.GatewayRBToneSupport = 1
```

Note Default properties prefixed by an "*", SS7-<ver>.<property_name> properties, and TALI-IOCC.<property_name> properties, are not shown.

Example 2-6 export_trkgrp.dat

```
#format3 - 9.6001
1001 hsi eisup-hsi-ent4a IP N 600 0 0 LIDL 0 0 0 ICCM 1
0 Loop 0 3 5 0 1 0 0 00 0 BL default 0 0 NULL 0 0
NULL 0 0 0 0 NULL 0 NULL SIP/2.0 5060 1000 500 4000 5 3
anonymous 1800000 1800000 300000 60000 UNSUPPORTED 90000 70 1
65 10 10 0 1 0 NULL NULL NULL NULL 0 0 NULL NULL 20 30
3 NULL 1 CLI NULL 1 0 1 0 0 40 0 0 1 0 0 t0 c 1 0
0 0 NULL 0 0 0 0 5 00000000 5 0 0 NULL 0 4 NULL 0 0
NULL NULL 0 0 0 0 1 1 0 0 0 0 0 0
2001 pstn ss7p-pstn1 TDM_ISUP N 600000 0 0 LIDL 0 0 0 0000
1 0 Loop 0 3 5 0 1 0 0 00 0 BL default 0 0 NULL 0 0
NULL 0 0 0 0 NULL 0 NULL SIP/2.0 5060 1000 500 4000 5 3
anonymous 10000 1800000 300000 60000 UNSUPPORTED 90000 10 1
65 10 10 0 1 0 null null null NULL 0 0 null null 20 30
3 NULL 1 CLI NULL 0 0 1 0 0 40 0 0 1 0 0 t0 c 1 0
0 0 NULL 0 0 0 0 5 00000000 5 0 0 NULL 0 4 NULL 0 0
a b 0 0 0 0 1 1 0 0 0 0 0 0
```

Example 2-7 export_trunk.dat

```
#format3 - 0.0
2001 1 ffff 1 as5400-pstn4a s2/ds1-0/1@as5400-pstn4a
2001 2 ffff 2 as5400-pstn4a s2/ds1-0/2@as5400-pstn4a
2001 3 ffff 3 as5400-pstn4a s2/ds1-0/3@as5400-pstn4a
2001 4 ffff 4 as5400-pstn4a s2/ds1-0/4@as5400-pstn4a
2001 6 ffff 6 as5400-pstn4a s2/ds1-0/6@as5400-pstn4a
2001 7 ffff 7 as5400-pstn4a s2/ds1-0/7@as5400-pstn4a
2001 8 ffff 8 as5400-pstn4a s2/ds1-0/8@as5400-pstn4a
2001 9 ffff 9 as5400-pstn4a s2/ds1-0/9@as5400-pstn4a
2001 10 ffff 10 as5400-pstn4a s2/ds1-0/10@as5400-pstn4a
2001 11 ffff 11 as5400-pstn4a s2/ds1-0/11@as5400-pstn4a
2001 12 ffff 12 as5400-pstn4a s2/ds1-0/12@as5400-pstn4a
2001 13 ffff 13 as5400-pstn4a s2/ds1-0/13@as5400-pstn4a
2001 14 ffff 14 as5400-pstn4a s2/ds1-0/14@as5400-pstn4a
2001 15 ffff 15 as5400-pstn4a s2/ds1-0/15@as5400-pstn4a
2001 16 ffff 16 as5400-pstn4a s2/ds1-0/16@as5400-pstn4a
2001 17 ffff 17 as5400-pstn4a s2/ds1-0/17@as5400-pstn4a
2001 18 ffff 18 as5400-pstn4a s2/ds1-0/18@as5400-pstn4a
```

```
2001 19 ffff 19 as5400-pstn4a s2/ds1-0/19@as5400-pstn4a
2001 20 ffff 20 as5400-pstn4a s2/ds1-0/20@as5400-pstn4a
2001 21 ffff 21 as5400-pstn4a s2/ds1-0/21@as5400-pstn4a
2001 22 ffff 22 as5400-pstn4a s2/ds1-0/22@as5400-pstn4a
2001 23 ffff 23 as5400-pstn4a s2/ds1-0/23@as5400-pstn4a
2001 24 ffff 24 as5400-pstn4a s2/ds1-0/24@as5400-pstn4a
2001 25 ffff 25 as5400-pstn4a s2/ds1-0/25@as5400-pstn4a
2001 26 ffff 26 as5400-pstn4a s2/ds1-0/26@as5400-pstn4a
2001 27 ffff 27 as5400-pstn4a s2/ds1-0/27@as5400-pstn4a
2001 28 ffff 28 as5400-pstn4a s2/ds1-0/28@as5400-pstn4a
2001 29 ffff 29 as5400-pstn4a s2/ds1-0/29@as5400-pstn4a
2001 30 ffff 30 as5400-pstn4a s2/ds1-0/30@as5400-pstn4a
2001 31 ffff 31 as5400-pstn4a s2/ds1-0/31@as5400-pstn4a
```

Example 2-8 XECfgParm.dat

This update to XECfgParm.dat is required for overlap support of PBX gateways (definitely required for the support of DPNSS):

```
*.analysisCapabilityLevel = 1
```

Number Translation with TimesTen Database

The Full Number Translation feature provides a large-scale number translation function on the Cisco PGW. This feature enhances the current PGW database query mode, which is used for local number portability (LNP) and CLI screening, by handling continuous ranges of numbers with analysis and modification capabilities.

The Full Number Translation feature supports large-scale changes of individual numbers. This feature adds the NUM_TRANS result type that is implemented in analysis where the existing Times Ten database is used to store the dial plan numbers.

The full number replacement mechanism adds a general number replacement result type, NUM_TRANS, available for A-number and B-number analysis. In addition, it includes a Times Ten query and full number translation table.

Hosted UCS 6.1(a) introduces the Full Number Translation with TimesTen Database feature. This means that the association of E.164 numbers to Internal numbers will use this feature instead of configuring via mml.

This section contains the following:

Sparc Based Platform Configuration

You must upload the HUCSprovx10 script on the PGW in order to use this feature.

Note If you have an Active/Standby system, ensure that you perform the steps described here on both platforms.

To configure the Sparc based platform on the Cisco PGW, complete the following steps.

Procedure

Step 1 Upload the HUCS_x10_package.gz package onto an FTP server reachable by the PGW.

Step 2 Login to the PGW as the PGW application user (default is mgcusr).

Step 3 Download HUCS_x10_package.gz from the FTP server into /opt/CiscoMGC/local.

Step 4 Unzip HUCS_x10_package.gz. Enter:

```
gunzip HUCS_x10_package.gz
```

Step 5 Untar HUCS_x10_package. Enter:

```
tar -xvf HUCS_x10_package
```

Step 6 The following output appears:

```
x ./HUCS_x10, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_vm64, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_vm64/jdk64-sparc-1_5_0_06.gz, 9424713 bytes, 18408
tape blocks
x ./HUCS_x10/java_vm64/jdk64-amd64-1_5_0_06.gz, 5439360 bytes, 10624
tape blocks
x ./HUCS_x10/java_appl, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_appl/data, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_appl/data/fnt_sample_data, 180 bytes, 1 tape blocks
```

```
x ./HUCS_x10/java_appl/data/lnp_fnt_sample_data, 246 bytes, 1 tape
blocks
x ./HUCS_x10/java_appl/data/lnp_sample_data, 67 bytes, 1 tape blocks
x ./HUCS_x10/java_appl/bin, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_appl/bin/HUCSprovx10, 246 bytes, 1 tape blocks
x ./HUCS_x10/java_appl/bin/HUCSprovx10.jar, 8143 bytes, 16 tape
blocks
```

Step 7 Go to the **java_vm64** folder. Enter:

```
cd HUCS_x10/java_vm64
```

Step 8 Unzip jdk64-sparc-1_5_0_06.gz. Enter:

```
gunzip jdk64-sparc-1_5_0_06.gz
```

Step 9 Untar jdk64-sparc-1_5_0_06. Enter:

```
tar -xvf jdk64-sparc-1_5_0_06
```

The following output appears:

```
x ./SUNWj5rtx, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/pkgmap, 7335 bytes, 15 tape blocks
x ./SUNWj5rtx/pkginfo, 571 bytes, 2 tape blocks
x ./SUNWj5rtx/install, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/install/copyright, 93 bytes, 1 tape blocks
x ./SUNWj5rtx/install/depend, 1063 bytes, 3 tape blocks
x ./SUNWj5rtx/reloc, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/reloc/jdk, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin, 0 bytes, 0 tape
blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9, 0 bytes, 0
tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/java, 81440
bytes, 160 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/keytool,
74520 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/orbd, 74664
bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/pack200,
74552 bytes, 146 tape blocks
```

```
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/policytool,
74536 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/rmid, 74520
bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/rmiregistry,
74520 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/servertool,
74520 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/tnameserv,
74696 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/sparcv9/unpack200,
205960 bytes, 403 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre, 0 bytes, 0 tape
blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin, 0 bytes, 0 tape
blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9, 0 bytes,
0 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/java,
81440 bytes, 160 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/keytool,
74520 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/orbd,
74664 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/pack200,
74552 bytes, 146 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/policytool,
74536 bytes, 146 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/rmid,
74520 bytes, 146 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/rmiregistry
, 74520 bytes, 146 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/servertool,
74520 bytes, 146 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/tnameserv,
74696 bytes, 146 tape blocks
```

```
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/sparcv9/unpack200,
205960 bytes, 403 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib, 0 bytes, 0 tape
blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9, 0 bytes,
0 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/awt_robot,
26432 bytes, 52 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/gtkhelper,
7760 bytes, 16 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/headless,
0 bytes, 0 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/headless/li
bmawt.so, 40400 bytes, 79 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/jvm.cfg,
659 bytes, 2 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libJdbcOdbc
.so, 56552 bytes, 111 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libawt.so,
1057000 bytes, 2065 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libcmm.so,
388400 bytes, 759 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libdcpr.so,
187368 bytes, 366 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libdt_socke
t.so, 19560 bytes, 39 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libfontmana
ger.so, 479320 bytes, 937 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libhprof.so
, 292680 bytes, 572 tape blocks
```

```
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libinstrume
nt.so, 86784 bytes, 170 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libioser12.
so, 14568 bytes, 29 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libj2pkcs11
.so, 66144 bytes, 130 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjaas_uni
x.so, 7344 bytes, 15 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjava.so,
179264 bytes, 351 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjava_crw
_demo.so, 46616 bytes, 92 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjawt.so,
3160 bytes, 7 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdgaSUNW
cg6.so, 11224 bytes, 22 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdgaSUNW
ffb.so, 11632 bytes, 23 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdgaSUNW
m64.so, 7912 bytes, 16 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdwp.so,
336848 bytes, 658 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjpeg.so,
204264 bytes, 399 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjsig.so,
14264 bytes, 28 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjsound.s
o, 329360 bytes, 644 tape blocks
```

```
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjsoundso
lmidi.so, 20872 bytes, 41 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libmanageme
nt.so, 29040 bytes, 57 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libmlib_ima
ge.so, 1370616 bytes, 2677 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libmlib_ima
ge_v.so, 1870136 bytes, 3653 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libnet.so,
84240 bytes, 165 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libnio.so,
34024 bytes, 67 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/librmi.so,
2840 bytes, 6 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libsaproc.s
o, 49280 bytes, 97 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libsunwjdga
.so, 10304 bytes, 21 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libunpack.s
o, 95064 bytes, 186 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libverify.s
o, 82200 bytes, 161 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libxinerama
.so, 9832 bytes, 20 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libzip.so,
83568 bytes, 164 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/motif21,
0 bytes, 0 tape blocks
```

```
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/motif21/lib
mawt.so, 607480 bytes, 1187 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/native_thre
ads, 0 bytes, 0 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/native_thre
ads/libhpi.so, 47832 bytes, 94 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server, 0
bytes, 0 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server/Xusa
ge.txt, 1423 bytes, 3 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server/libj
vm.so, 12163008 bytes, 23756 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server/libj
vm_db.so, 46656 bytes, 92 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/xawt, 0
bytes, 0 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/sparcv9/xawt/libmaw
t.so, 257176 bytes, 503 tape blocks
```

Step 10 As a root user, add the SUNWj5rtx package. Enter:

```
pkgadd -d . SUNWj5rtx
```

Step 11 The following output appears:

```
Processing package instance <SUNWj5rtx> from
</opt/CiscoMGC/local/HUCS_x10/java_vm64>


JDK 5.0 64-bit Runtime Env. (1.5.0_06)(sparc)
1.5.0,REV=2004.12.06.22.09
Copyright 2004 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.
Using </usr> as the package base directory.
## Processing package information.
## Processing system information.
   7 package pathnames are already properly installed.
```

```
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

Installing JDK 5.0 64-bit Runtime Env. (1.5.0_06) as <SUNWj5rtx>

## Installing part 1 of 1.
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/java
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/keytool
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/orbd
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/pack200
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/policytool
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/rmid
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/rmiregistry
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/servertool
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/tnameserv
/usr/jdk/instances/jdk1.5.0/bin/sparcv9/unpack200
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/java
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/keytool
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/orbd
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/pack200
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/policytool
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/rmid
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/rmiregistry
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/servertool
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/tnameserv
/usr/jdk/instances/jdk1.5.0/jre/bin/sparcv9/unpack200
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/awt_robot
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/gtkhelper
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/headless/libmawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/jvm.cfg
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libJdbcOdbc.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libcmm.so
```

```
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libdcpr.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libdt_socket.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libfontmanager.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libhprof.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libinstrument.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libioser12.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libj2pkcs11.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjaas_unix.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjava.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjava_crw_demo.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdgaSUNWafb.so
<symbolic link>
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdgaSUNWcg6.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdgaSUNWffb.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdgaSUNWm64.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjdwp.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjpeg.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjsig.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjsound.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libjsoundsolmidi.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libmanagement.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libmlib_image.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libmlib_image_v.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libnet.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libnio.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/librmi.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libsaproc.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libsunwjdga.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libunpack.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libverify.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libxinerama.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/libzip.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/motif21/libmawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/native_threads/libhpi.so
```

```
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server/Xusage.txt
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server/libjsig.so
<symbolic link>
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server/libjvm.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/server/libjvm_db.so
/usr/jdk/instances/jdk1.5.0/jre/lib/sparcv9/xawt/libmawt.so
[ verifying class <none> ]

Installation of <SUNWj5rtx> was successful.
```

Step 12 Go to /opt/CiscoMGC/local/HUCS_x10/java_appl/bin.

Step 13 Move HUCSprovx10 and HUCSprovx10.jar to /opt/CiscoMGC/local/. For example, *mv HUCS* /opt/CiscoMGC/local*

Step 14 Repeat these steps on the Standby platform (if applicable).

This completes the requred steps for uploading the HUCSprovx10 script on the PGW(s).

Opteron Based Platform Configuration

Note: If you have an Active/Standby system ensure that you perform the steps described below on both platforms.

To use this feature, you must upload the HUCSprovx10 script on the PGW. To do this, complete the following steps.

Procedure

Step 1 Upload the HUCS_x10_package.gz package onto an FTP server reachable by the PGW.

Step 2 Login to the PGW as the PGW application user (default is mgcusr).

Step 3 Download HUCS_x10_package.gz from the FTP server into /opt/CiscoMGC/local.

Step 4 Unzip HUCS_x10_package.gz. Enter:

```
gunzip HUCS_x10_package.gz
```

Step 5 Untar HUCS_x10_package. Enter:

```
tar -xvf HUCS_x10_package
```

Step 6 The following output appears:

```
x ./HUCS_x10, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_vm64, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_vm64/jdk64-sparc-1_5_0_06.gz, 9424713 bytes, 18408
tape blocks
x ./HUCS_x10/java_vm64/jdk64-amd-1_5_0_06.gz, 5439360 bytes, 10624
tape blocks
x ./HUCS_x10/java_appl, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_appl/data, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_appl/data/fnt_sample_data, 180 bytes, 1 tape blocks
x ./HUCS_x10/java_appl/data/lnp_fnt_sample_data, 246 bytes, 1 tape
blocks
x ./HUCS_x10/java_appl/data/lnp_sample_data, 67 bytes, 1 tape blocks
x ./HUCS_x10/java_appl/bin, 0 bytes, 0 tape blocks
x ./HUCS_x10/java_appl/bin/HUCSprovx10, 246 bytes, 1 tape blocks
x ./HUCS_x10/java_appl/bin/HUCSprovx10.jar, 8118 bytes, 16 tape
blocks
```

Step 7 Go to the java_vm64 folder. Enter:

```
cd HUCS_x10/java_vm64
```

Step 8 Unzip jdk64-amd-1_5_0_06.gz. Enter:

```
gunzip jdk64-amd-1_5_0_06.gz
```

Step 9 Untar jdk64-amd-1_5_0_06. Enter:

```
tar -xvf jdk64-amd-1_5_0_06
```

Step 10 The following output appears:

```
x ./SUNWj5rtx, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/pkgmap, 6599 bytes, 13 tape blocks
x ./SUNWj5rtx/pkginfo, 573 bytes, 2 tape blocks
x ./SUNWj5rtx/install, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/install/copyright, 93 bytes, 1 tape blocks
x ./SUNWj5rtx/install/depend, 1063 bytes, 3 tape blocks
x ./SUNWj5rtx/reloc, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/reloc/jdk, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances, 0 bytes, 0 tape blocks
```

```
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0, 0 bytes, 0 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin, 0 bytes, 0 tape
blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64, 0 bytes, 0 tape
blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/java, 68016
bytes, 133 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/keytool, 71424
bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/orbd, 71568
bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/pack200, 71456
bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/policytool,
71456 bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/rmid, 71424
bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/rmiregistry,
71424 bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/servertool,
71424 bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/tnameserv,
71600 bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/bin/amd64/unpack200,
200368 bytes, 392 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre, 0 bytes, 0 tape
blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin, 0 bytes, 0 tape
blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64, 0 bytes, 0
tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/java, 68016
bytes, 133 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/keytool,
71424 bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/orbd, 71568
bytes, 140 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/pack200,
71456 bytes, 140 tape blocks
```

```
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/policytool,
71456 bytes, 140 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/rmid, 71424
bytes, 140 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/rmiregistry,
71424 bytes, 140 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/servertool,
71424 bytes, 140 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/tnameserv,
71600 bytes, 140 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/bin/amd64/unpack200,
200368 bytes, 392 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib, 0 bytes, 0 tape
blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64, 0 bytes, 0
tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/awt_robot,
24768 bytes, 49 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/gtkhelper,
7120 bytes, 14 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/headless, 0
bytes, 0 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/headless/libm
awt.so, 33024 bytes, 65 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/j2pkcs11.dll,
65666 bytes, 129 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/j2pkcs11_g.dl
l, 82054 bytes, 161 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/jvm.cfg,
652 bytes, 2 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libJdbcOdbc.s
o, 64768 bytes, 127 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libawt.so,
481776 bytes, 941 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libcmm.so,
383216 bytes, 749 tape blocks
```

```
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libdcpr.so,
190656 bytes, 373 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libdt_socket.
so, 18072 bytes, 36 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libfontmanage
r.so, 457896 bytes, 895 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libhprof.so,
179616 bytes, 351 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libinstrument
.so, 74152 bytes, 145 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libioser12.so
, 16824 bytes, 33 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libj2pkcs11.s
o, 61192 bytes, 120 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjaas_unix.
so, 6232 bytes, 13 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjava.so,
163928 bytes, 321 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjava_crw_d
emo.so, 26160 bytes, 52 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjawt.so,
3432 bytes, 7 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjdwp.so,
278624 bytes, 545 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjpeg.so,
187080 bytes, 366 tape blocks
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjsig.so,
14824 bytes, 29 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libjsound.so,
294688 bytes, 576 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libmanagement
.so, 27448 bytes, 54 tape blocks
```

```
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libmlib_image
.so, 807296 bytes, 1577 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libnet.so,
71744 bytes, 141 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libnio.so,
30816 bytes, 61 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/librmi.so,
3056 bytes, 6 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libsaproc.so,
62024 bytes, 122 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libunpack.so,
95712 bytes, 187 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libverify.so,
63232 bytes, 124 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/libzip.so,
75200 bytes, 147 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/motif21, 0
bytes, 0 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/motif21/libma
wt.so, 528728 bytes, 1033 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/native_thread
s, 0 bytes, 0 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/native_thread
s/libhpi.so, 41312 bytes, 81 tape blocks

x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/server, 0
bytes, 0 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/server/Xusage
.txt, 1423 bytes, 3 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/server/libjvm
.so, 12230144 bytes, 23887 tape blocks

x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/server/libjvm
_db.so, 54776 bytes, 107 tape blocks
```

```
x ./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/xawt, 0
bytes, 0 tape blocks
x
./SUNWj5rtx/reloc/jdk/instances/jdk1.5.0/jre/lib/amd64/xawt/libmawt.
so, 226704 bytes, 443 tape blocks
```

Step 11 As a root user, add the SUNWj5rtx package. Enter:

```
pkgadd -d . SUNWj5rtx
```

Step 12 The following output appears:

```
Processing package instance <SUNWj5rtx> from
</opt/CiscoMGC/local/HUCS_x10/java_vm64>

JDK 5.0 64-bit Runtime Env. (1.5.0_06)(i386)
1.5.0,REV=2005.03.04.02.15
Copyright 2004 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.
Using </usr> as the package base directory.
## Processing package information.
## Processing system information.
   7 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

Installing JDK 5.0 64-bit Runtime Env. (1.5.0_06) as <SUNWj5rtx>

## Installing part 1 of 1.
/usr/jdk/instances/jdk1.5.0/bin/amd64/java
/usr/jdk/instances/jdk1.5.0/bin/amd64/keytool
/usr/jdk/instances/jdk1.5.0/bin/amd64/orbd
/usr/jdk/instances/jdk1.5.0/bin/amd64/pack200
/usr/jdk/instances/jdk1.5.0/bin/amd64/policytool
/usr/jdk/instances/jdk1.5.0/bin/amd64/rmid
/usr/jdk/instances/jdk1.5.0/bin/amd64/rmiregistry
/usr/jdk/instances/jdk1.5.0/bin/amd64/servertool
```

```
/usr/jdk/instances/jdk1.5.0/bin/amd64/tnameserv
/usr/jdk/instances/jdk1.5.0/bin/amd64/unpack200
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/java
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/keytool
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/orbd
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/pack200
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/policytool
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/rmid
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/rmiregistry
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/servertool
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/tnameserv
/usr/jdk/instances/jdk1.5.0/jre/bin/amd64/unpack200
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/awt_robot
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/gtkhelper
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/headless/libmawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/j2pkcs11.dll
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/j2pkcs11_g.dll
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/jvm.cfg
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libJdbcOdbc.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libcmm.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libdcpr.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libdt_socket.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libfontmanager.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libhprof.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libinstrument.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libioser12.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libj2pkcs11.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjaas_unix.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjava.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjava_crw_demo.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjdwp.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjpeg.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjsig.so
```

```
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libjsound.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libmanagement.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libmlib_image.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libnet.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libnio.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/librmi.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libsaproc.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libunpack.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libverify.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/libzip.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/motif21/libmawt.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/native_threads/libhpi.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/server/Xusage.txt
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/server/libjsig.so
<symbolic link>
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/server/libjvm.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/server/libjvm_db.so
/usr/jdk/instances/jdk1.5.0/jre/lib/amd64/xawt/libmawt.so
[ verifying class <none> ]


Installation of <SUNWj5rtx> was successful.
```

Step 13 Go to /opt/CiscoMGC/local/HUCS_x10/java_appl/bin.

Step 14 Move HUCSprovx10 and HUCSprovx10.jar to /opt/CiscoMGC/local/

For example,

mv HUCS /opt/CiscoMGC/local*

Step 15 Repeat these steps on the Standby platform (if applicable).

This completes the requred steps for uploading the HUCSprovx10 script on the PGW.

Applying Static Configuration to the Cisco HSI

This section explains how to apply the static configuration to the Cisco HSI. This is required before using BVSM to load the bulk data that integrates the Cisco HSI into the Hosted UCS platform.

Cisco HSI enables the Cisco PGW to talk to the Cisco Unified CM using H.323 over the H.323 gatekeeper. The HSI is an adjunct to the Cisco PGW and simply provides an H.323 interface.

Apart from the configuration described in this section, Cisco HSI has mandatory parameters that must be provisioned; for example:

- IP addresses of the HSI
- IP addresses the Cisco PGWs
- Ports used to communicate with the PGW

For further information, refer to the *Cisco H.323 Signaling Interface User Guide, Release 4.2*.

Example 2-9 illustrates the Hosted UCS- specific static configuration settings required on all HSIs.

Example 2-9 RAS Parameters

```
prov-add:name=ras,gatekeeperId=HUCS_ZONE
prov-add:name=ras,gateway.prefix[1]=999#
prov-add:name=ras,manualDiscovery.ipAddress=<gatekeeper_ip_address>,
for example:
prov-add:name=ras,manualDiscovery.ipAddress=10.120.4.51
prov-add:name=ras,manualDiscovery.port=1719
prov-add:name=ras,terminalAlias[1].h323ID=<hsi_name>, for example:
prov-add:name=ras,terminalAlias[1].h323ID=hsi-ent4a@cisco.com
```

Example 2-10 illustrates the Hosted UCS- specific static configuration settings required to support T.38 fax:

Example 2-10 T.38 fax support

Example 2-9 illustrates the Hosted UCS- specific static configuration settings required on all HSIs.

```
prov-add:name=sys_config_static,t38maxval=”MaxBit 0x90, FxMaxBuf 0xc8,
FxMaxData 0x48"
```

```
prov-add:name=sys_config_static,t38options="FxFillBit 0, FxTransMMR 0,
FxTransJBIG 0, FxRate Trans, FxUdpEC Red"
```

Example 2-11 illustrates the Hosted UCS- specific static configuration settings required to support DTMF.

Example 2-11 DTMF support

```
prov-add:name=sys_config_static, dtmfsupporteddirection=both
prov-add:name=sys_config_static, dtmfsupportedtype=dtmf
```

Example 2-12 illustrates the static configuration settings required to support transit of the redirecting number parameter.

Example 2-12 Transit of the redirecting number parameter

This is contained in Cisco Unified CM H.225 setup messages—nonStandardControl field)

```
prov-add:name=sys_config_static, h225pavosupported=enabled
```

Example 2-13 illustrates the static configuration settings required to support CLIP and CLIR.

Example 2-13 CLIP/CLIR support

```
prov-add:name=SYS_CONFIG_STATIC,ClipClirSupported=enabled
prov-add:name=CCPackage,A_CC_AnumDataSI=1
prov-add:name=CCPackage,A_CC_Clir=1
```

Applying Static Configuration to the Cisco H.323 Gatekeeper

This section explains how to apply the static configuration to the Cisco H.323 gatekeeper. This is required before using BVSM to load the bulk data that integrates the Cisco H.323 Gatekeeper into the Hosted UCS platform.

An H.323 gatekeeper is included in the Hosted UCS platform to provide basic infrastructure capabilities. It provides registration capability for the Cisco PGW (through the Cisco HSI), Cisco Unified CM, and any H.323 customer devices. The gatekeeper forces all routing to use the Cisco PGW rather than to operate between Cisco Unified CM clusters.

Configure the following static configuration settings on the gatekeepers in global configuration mode:

Example 2-14 Gatekeeper Static Configuration

```
gatekeeper
zone local HUCS_ZONE cisco.com
gw-type-prefix 999#* default-technology
no shutdown
```

CHAPTER 3

Managing the Hosted Unified Communications Services Platform with VisionOSS BVSM

This chapter explains how to use VisionOSS BVSM to view, configure, and provision the resources and components of the Hosted Unified Communications Services (UCS) platform. It includes the following topics:

BVSM GUI Overview

BVSM provides integrated, hierarchical, role-based administration of Hosted UCS platform components. This is required to support scalable, decentralized administration of a multi-tenant hosted communications service. The administrative hierarchy is as follows, from top to bottom:

```
Providers
    Channels (resellers)
        Customers
            Division administrators
                Location administrators
                    Users
```

Each administrator or user has access to lower levels in the hierarchy, but not at higher levels. This allows the secure delegation of authority from provisioning at the provider or reseller level, down to self-care at the level of customer end users.

The following list shows configuration capabilities at various levels:

- Self-service (manual configuration of a specific phone)—Users
- Auto-provisioning and device configuration for each site—Location/division administrators, channel/reseller administrators
- Bulk data loading—Location/division administrators, channel/reseller administrators

Caution To maintain platform-wide data integrity, use BVSM for configuring or provisioning all Hosted UCS components whenever possible. If it is necessary to configure Hosted UCS platform components directly, be certain that the changes will not affect system integrity.

Loading Bulk Data for Initial Configuration

Before performing any other configuration, you will typically use the BVSM Deployment (Bulk Data) Tool to perform the initial configuration of the Hosted UCS platform components.

For information about using bulk data loading for the initial configuration of the Hosted UCS platform components, refer to "Chapter 4, "Using Bulk Loaders for the Initial Configuration of Hosted Unified Communication Services Components."

BVSM provides a platform-wide view that includes Cisco Unified CM and the Cisco PGW. When administrators enter or edit data using BVSM, the necessary configuration for Cisco Unified CM and Cisco PGW is performed automatically.

Setup Tools

The **Setup Tools** option lets you set up and configure the BVSM management platform when establishing the platform for a new deployment. It sets up all the internal capabilities for BVSM in terms of the services, phones, and features that are presented on the BVSM GUI.

When you select the **Setup Tools** option on the VisionOSS menu, the system displays the screen shown in Figure 3-1.

Figure 3-1 Setup Tools Options

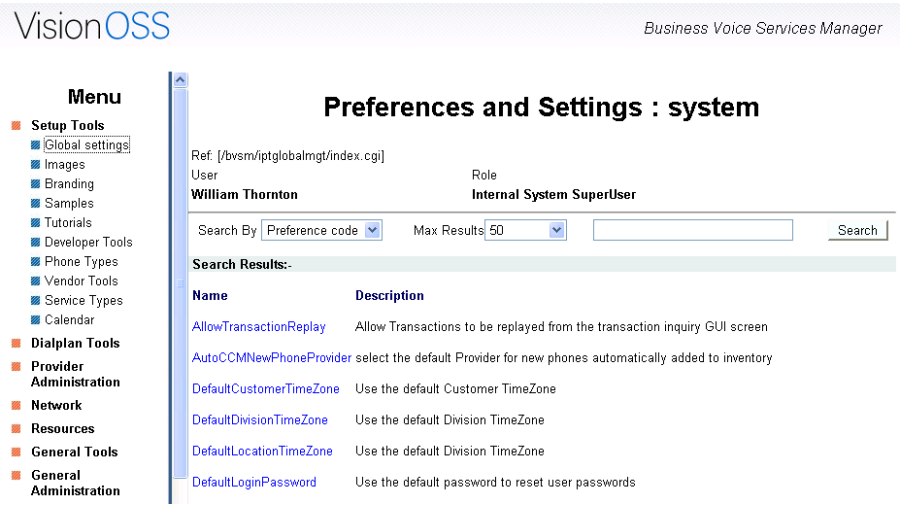


Table 3-1 summarizes the function of each option provided on the Setup Tools menu.

Table 3-1 Setup Tools Menu Options

Option	Description
Global Settings	Sets preferences at the global level for the whole platform. These settings are similar to preferences at the provider, customer, and location levels.
Images	Loads images, such as logos, used for branding.
Branding	Lets service providers customize the BVSM GUI with specific colors, labels, icons, and logo, on a platform-wide basis, or for each customer.
Samples	Provides super users with bulk data loading spreadsheets, which can be used as templates or for training.
Tutorials	Provides super users with various tutorials to assist with the understanding of BVSM. These tutorials can be used for training purposes.
Developer Tools	Provides access to developer tools.
Phone Types	Creates phone types within BVSM and adds them to the BVSM menus, which helps deliver services consistently. After the phone type is added, it appears to users in the BVSM phone menus.
Vendor Tools	Provides access to vendor tools.
Service Types	Creates service types within BVSM within BVSM and adds them to the BVSM menus, which helps deliver services consistently. After the service type is added, it appears to users in the BVSM services and feature group menus.
Access Profiles	Provides access to the profiles.
Calendar	Provides access to the calendar.

Dialplan Tools

The **Dialplan Tools** option lets you create the dial plan configuration for the Hosted UCS platform during initial deployment.

The dial plan tells the Cisco Hosted UCS platform how to route calls against a number plan. BVSM is responsible for configuring and loading the dial plan into the various components within Hosted UCS, such as the Cisco PGW and Cisco Unified CM. Super users can create and manage the dial plan when first deploying the platform as well as whenever the dial plan is revised.

The dial plan used for Hosted UCS is designed using Excel spreadsheets, which are loaded using the **Deployment** (**Bulk Load Tools**) option from the General Tools menu.

Dial plan templates can be customized for each provider and after loading, can be further customized for specific customers and locations. For example, each location may require a different extension number length.

When you select the **Dialplan Tools** option on the VisionOSS menu, the system displays the screen shown in Figure 3-2.

Figure 3-2 Dialplan Tools Menu Options

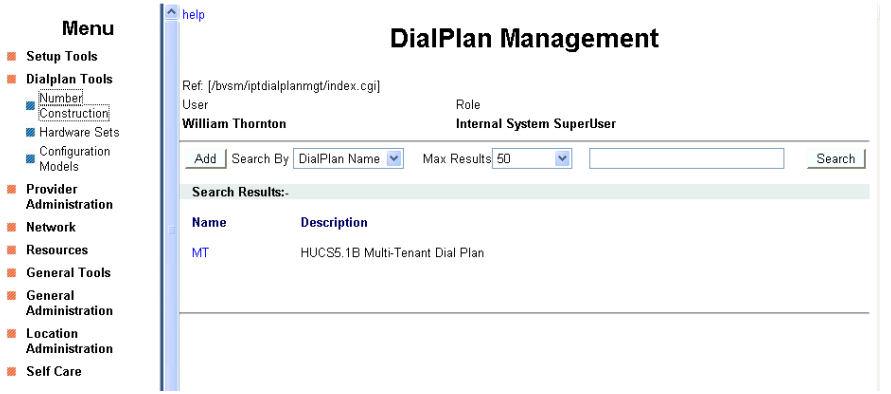


Table 3-2 summarizes the function of each option provided on the Dialplan Tools menu.

Table 3-2 Dialplan Tools Options

Option	Description
Number Construction	Configures dial plan variables such as the following: • Codec settings (compression and decompression standards) • Site number formats • Site display formats • Multi-tenant capabilities • Dial prefixes • E.174 number formats
Hardware Sets	Defines the templates for BVSM to use for hardware configurations and defines the dial plan associated with each hardware set.
Configuration Models	Provides model loader programs (similar to bulk data loaders) as well as various sample templates. Each model loader is designed for a specific Hosted UCS platform component, including the following: • Cisco PGW • Cisco Unified CM • Gateways • Application services such as voice mail
CMM Model Management	Allows multiple Service Providers to manage their telephony service using the same BVSM system. The Provider Management section enables the creating, modification and deleting of the each of the Service Providers.

Provider Administration

The **Provider Administration** option lets super users create or change provider settings for the entire Hosted UCS platform, including adding or changing provider administrators.

Caution The default super user account is *BVSM*, and the default password is *password*. After accessing BVSM, change the password for the BVSM super user account to a strong password. For greater security, create a super user account with a less obvious account name and a strong password, and delete the default super user account.

When you select the **Provider Administration** option on the VisionOSS menu, the system displays the screen shown in Figure 3-3.

Figure 3-3 Provider Administration Menu

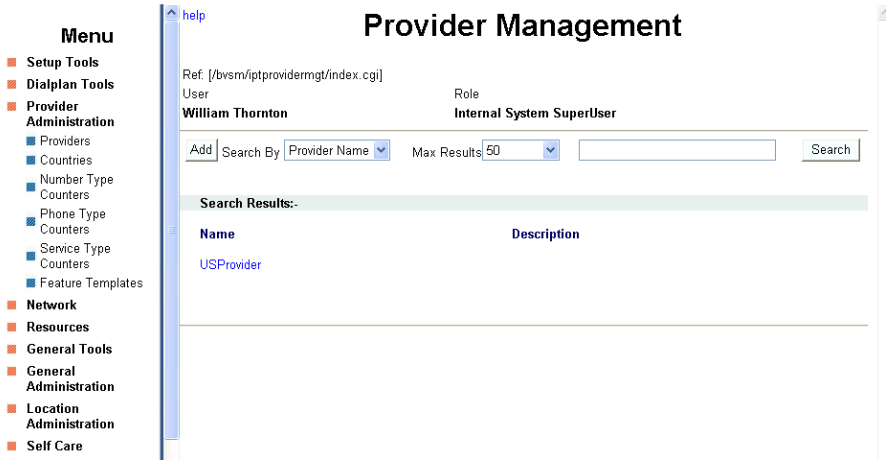


Table 3-3 summarizes the function of each option provided on the Provider Administration menu.

Table 3-3 Provider Administration Options

Option	Description
Providers	Opens the Provider Management page, where you can access and edit provider preferences.
Countries	Add or delete countries.
Number Type Counters	Manage the reserved inventory for lines by type of line.
Phone Type Counters	Manage the inventory for phones by type of phone.
Service Type Counters	Manage the reserved inventory for phones, lines, and services.
Feature Templates	Manage feature groups, which are a combination of features required for all users or phones.

Network

The **Network** option allows you to set up the network infrastructure so that BVSM can then perform its management role.

When you select the **Network** option on the VisionOSS menu, the system displays the screen shown in Figure 3-4.

Figure 3-4 Network Menu Options

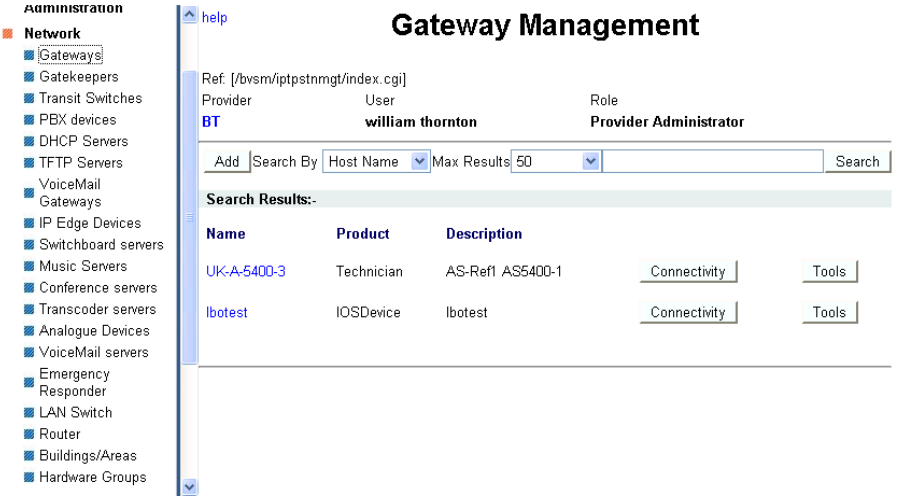


Table 3-4 summarizes the function of each option provided on the Network menu.

Table 3-4 Network Options

Option	Description
Gateways	Add, delete, or modify PSTN gateways.
Gatekeepers	Add, delete, or modify gatekeepers.
Transit Switches	Add, delete, or modify Cisco PGW switches.
PBX Devices	Add, delete, or modify Cisco Unified CM servers.
DHCP Servers	Add, delete, or modify DHCP servers.
TFTP Servers	Add, delete, or modify TFTP servers.
VoiceMail Gateways	Add, delete, or modify voice mail gateways.
IP Edge Devices	Add, delete, or modify IP edge devices.
Console Servers	Add, delete, or modify switchboard servers.
Music Servers	Add, delete, or modify music on hold (MOH) servers.

Table 3-4 Network Options (continued)

Option	Description
Conference Servers	Add, delete, or modify conference servers.
Transcoder Servers	Add, delete, or modify transcoder servers, used to translate between codecs.
Annunciator Servers	Add, delete, or modify Annunciator servers.
Media Termination Point	Add, delete, or modify the media termination points.
Analogue Devices	Add, delete, or modify analog devices.
VoiceMail Servers	Add, delete, or modify voicemail servers.
Directory Servers	Add, delete, or modify directory servers.
Emergency Responder	Add, delete, or modify emergency responders.
LAN Switch	Add, delete, or modify Ethernet switches.
Router	Add, delete, or modify IP routers.
IVR	Add, delete, or modify IVR.
Hardware Groups	Add, delete, or modify hardware groups.
Contact Centre	Add, delete, or modify Contact Centre.

Resources

The **Resources** option allows you to create the necessary resources and make them available to the relevant location.

When you select the **Resources** option on the VisionOSS menu, the system displays the screen shown in Figure 3-5.

Figure 3-5 Resources Menu

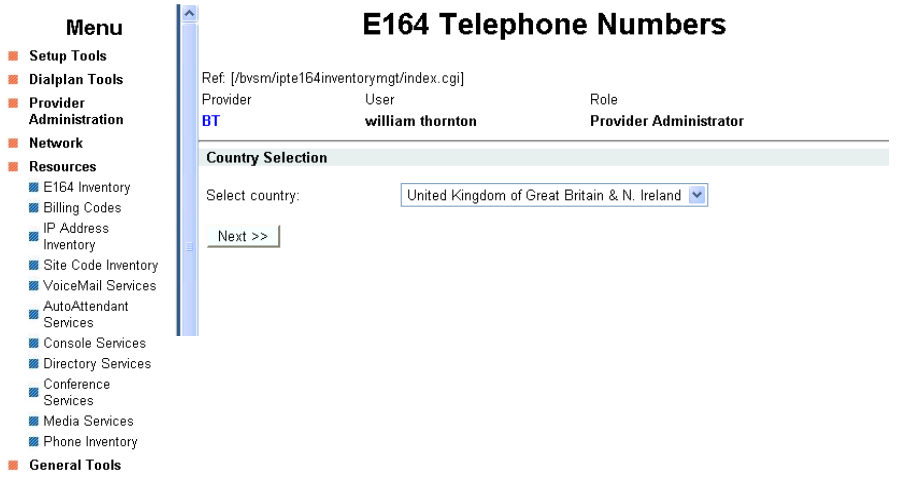


Figure 3-5 summarizes the function of each option provided on the Resources menu.

Table 3-5 Resources Options

Option	Description
E164 Inventory	E164 numbers, also called PSTN or DDI numbers, identify the phone to the external PSTN. BVSM ensures that each E164 number is only allocated once.
Billing Codes	Provides access to billing codes.
IP Address Inventory	Provides access to the IP address inventory.
Site Code Inventory	Used as the short-code dial prefix before internal direct dial numbers for a location, allowing internal calls between sites to be routed directly over the internal network.
VoiceMail Services	Creates voice-mail services for each customer, which can then be managed by the customer administrator within each location.

Table 3-5 Resources Options (continued)

Option	Description
AutoAttendant Services	Creates auto attendant services for each customer, which can then be managed by the customer administrator within each location.
Console Services	Creates console services for each customer, which can then be managed by the customer administrator within each location.
Directory Services	Creates directory services for each customer, which can then be managed by the customer administrator within each location.
Conference Services	Creates conference services for each customer, which can then be managed by the customer administrator within each location.
Media Services	Creates media services for each customer, which can then be managed by the customer administrator within each location.
Phone Inventory	Creates, moves, and deletes phones within or between customer locations.
Contact Centre Service	Creates contact centre services for each customer.

General Tools

The **General Tools** option provides access to the following menu choices:

- **Operations Tools**
- **Deployment (Bulk Data) Tools**
- **Transactions**

For detailed information about using the **Bulk Data Tools** option for initial configuration of the Hosted UCS platform components, refer to Chapter 5, “Configuring Hosted UCS Components.”

When you select the **General Tools** option on the VisionOSS menu, the system displays the screen shown in Figure 3-6.

Figure 3-6 General Tools Menu

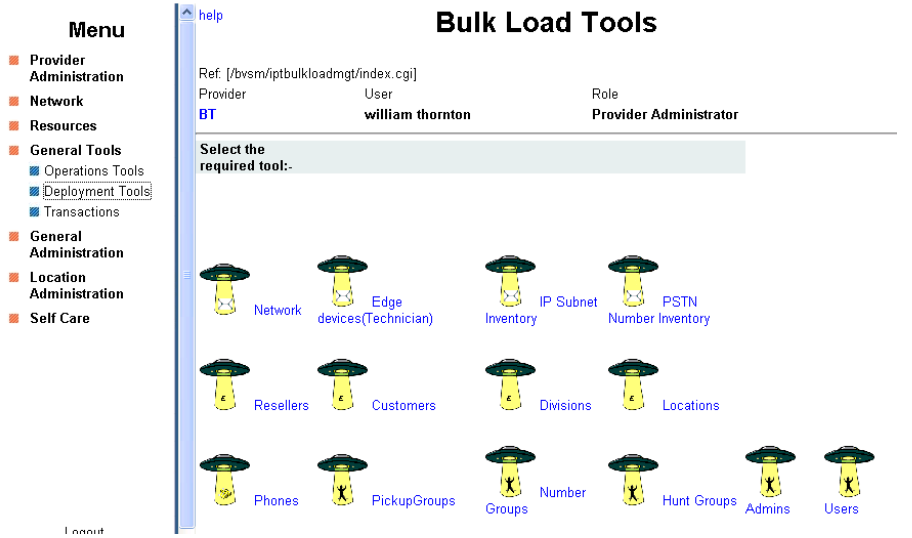


Figure 3-6 summarizes the function of each option provided on the General Tools menu.

Table 3-6 General Tools Options

Option	Description
Operations Tools	Automates multi-step processes. The operations tools are also used for testing purposes when a 360-degree test needs to be performed, such as adding a location, deleting a location, and then adding the same location again. These options are also useful for refreshing a location when adding a new dial plan to legacy locations.
Deployment Tools	Loads bulk data into BVSM using Excel spreadsheets. Providers must load bulk data, including network elements, channels, customers, users, and CPE resources, before services can be delivered. Loading bulk data speeds up platform configuration, especially during the initial phases or with a large amount of data.
Transactions	Provides a chronological record of failed and successful activities associated with each user. This feature is useful for troubleshooting BVSM and for providing an audit trail for administration moves, adds, and changes.

General Administration

The **General Administration** option lets you navigate between locations, divisions, customers, and resellers. However, the Status menu provides a faster means of changing levels when you are working in the Location Administration menu.

You cannot jump to a lower level because BVSM does not know which branch of the customer tree you will follow. The best way to jump straight to a location is by selecting the Location key under the **General Administration** option and step down the levels from reseller, customer, and division. This is faster than selecting one level at a time.

When you select the **General Administration** option on the VisionOSS menu, the system displays the screen shown in Figure 3-7.

Figure 3-7 General Administration Menu Options

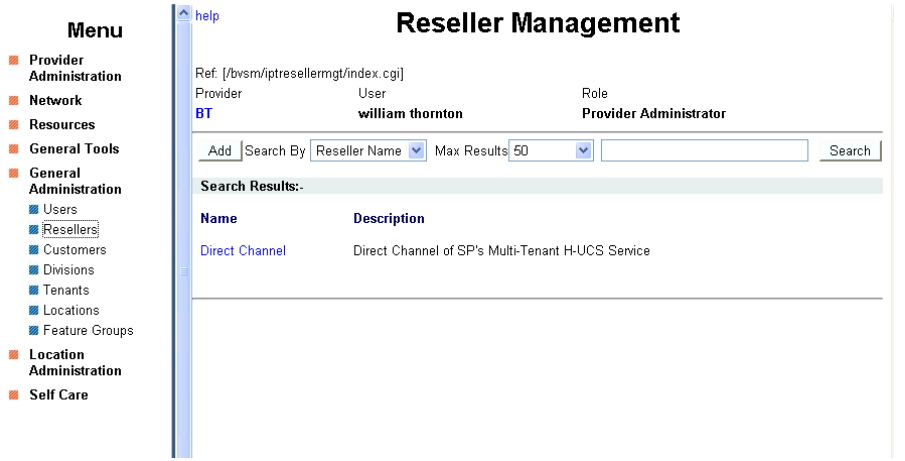


Table 3-7 summarizes the function of each option provided on the General Administration menu.

Table 3-7 General Administration Options

Option	Description
Users	Manage users (repeated in Location Administration).
Resellers	Manage channels (provider administrator only).
Buildings	Manage building (building administrator only).
Customers	Manage customers (reseller administrator only).
Divisions	Manage divisions (customer administrator only).

Table 3-7 General Administration Options (continued)

Option	Description
Locations	Manage locations (division administrator only).
Feature Groups	Manage feature groups (managed at customer level).

Location Administration

The **Location Administration** option contains links for the main administrative processes. When you select the **Location Administration** option on the VisionOSS menu, the system displays the screen shown in Figure 3-8.

Figure 3-8 Location Administration Menu Options

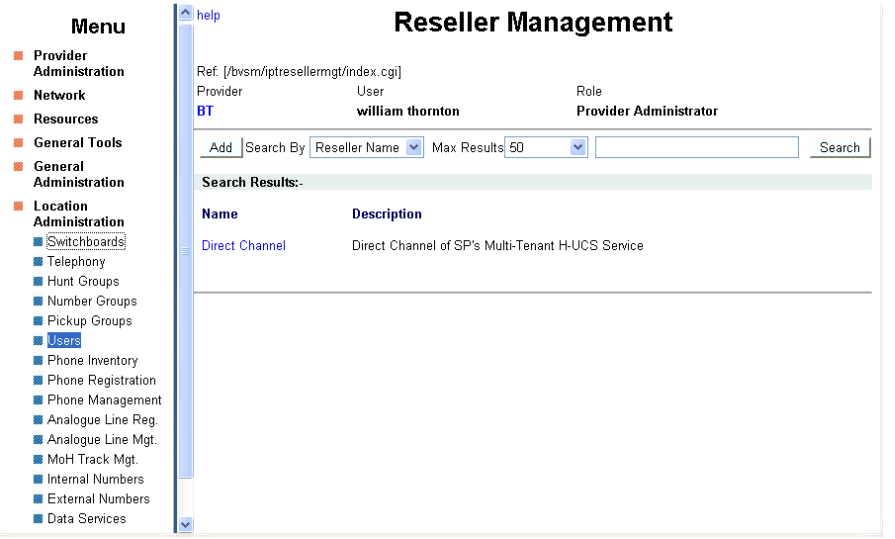


Table 3-8 summarizes the function of each option provided on the Location Administration menu.

Table 3-8 Location Administration Options

Option	Description
Switchboards	Add and manage switchboards.
Telephony	Manage telephony services.
Hunt Groups	Add and manage hunt groups.
Number Groups	Add and manage number groups.
Voicemail Groups	Add and manage voicemail groups.
Pickup Groups	Add and manage pickup groups.
Users	Add, delete, and modify users.
Phone Inventory	Add, move, register, associate, and delete phones.
Phone Registration	Register and un-register phones.
Phone Management	Manage phones.
Analogue Line Reg.	Register and unregister analog lines.
Analogue Line Mgt	Manage analog lines.
MOH Track Mgt.	Add and manage Music on Hold tracks.
Internal Numbers	Manage internal numbers.
External Numbers	Manage external (DDI) numbers.
Data Services	Manage data services.

Self Care

The **Self Care** option lets end users view their personal data and administer their own telephony settings. When the user selects the **Self Care** option on the VisionOSS menu, the system displays the screen shown in Figure 3-9.

Figure 3-9 Self Care Menu Options

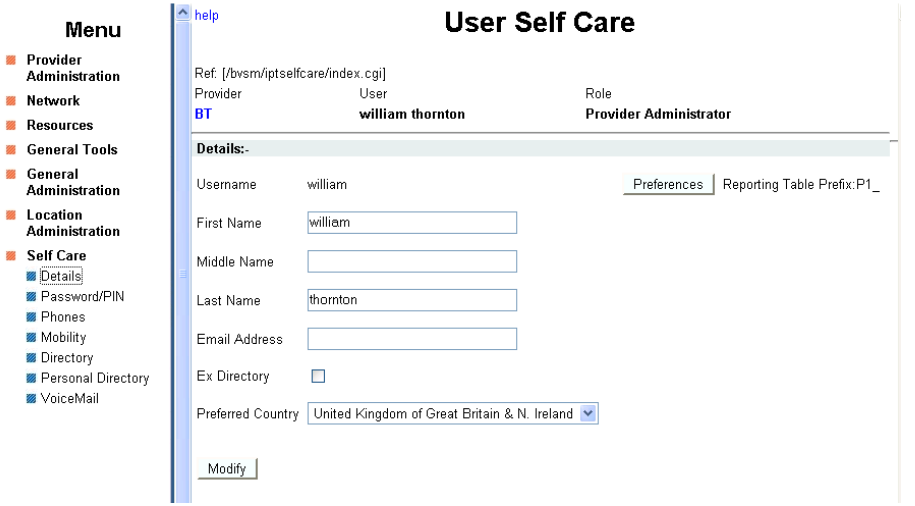


Table 3-9 summarizes the function of each option provided on the Self Care menu.

Table 3-9 Self Care Options

Option	Description
Details	Lists personal user profile details and allows these details to be modified.
Password/PIN	Lists password and PIN and allows these to be modified. The password is used with the User ID to login to BVSM. The PIN is used with the User ID to login to the phone.
Phones	Lists the phone profile associated with the user account and allows these details to be modified. The phone profile is linked to the phone and is associated with a user account. These details are customized for the user account, but are available only on the specified phone.

Table 3-9 Self Care Options (continued)

Option	Description
Mobility	Displays the mobility profile associated with a user account and allows the details to be modified. A mobility profile is linked to the user account, rather than a specific phone. When a user logs onto a phone, these details are associated with that phone until the user logs off.
Directory	Displays the customer user accounts and associated phone numbers, but does not allow these details to be modified. When a user account is added to the system, BVSM automatically adds it to the directory.
Personal Directory	Lists the personal address book and phone numbers of the user. It allows users to administer their personal contacts. When a user account is added to the system, BVSM automatically sets up a personal address space, where the user can store personal directory entries.
VoiceMail	Lists voicemail account settings and allows users to administer their own account settings. When a user account is added to the system, it is automatically assigned a voicemail account.

CHAPTER 4

Using Bulk Loaders for the Initial Configuration of Hosted Unified Communication Services Components

This chapter describes the process for building and configuring a Cisco Hosted Unified Communications Services (Hosted UCS) platform.

Before loading bulk data, complete the prerequisites in Chapter 1, "Introducing Cisco Hosted Unified Communications Services," and apply the static configuration described in Chapter 2, "Configuring Hosted Unified Communications Services Components Before Loading Bulk Data."

This chapter contains the following sections:

Using BVSM Bulk Loaders

This section explains how to use the BVSM bulk data loaders provided with the Hosted UCS platform.

This section contains the following topics:

Overview

Bulk data loaders are specially formatted Excel spreadsheets that let you quickly load data into BVSM. The bulk loaders are a key part of the build process and follow a strict format. However, you should be able to convert an existing set of loaders to your needs rather than starting from the beginning.

Note Currently, bulk loaders can be used only by system administrators, not by provider administrators.

You do not have to use bulk loaders for all tasks. You can enter the data directly through the BVSM GUI for most tasks.

There are three sets of bulk loaders provided with the Hosted UCS platform:

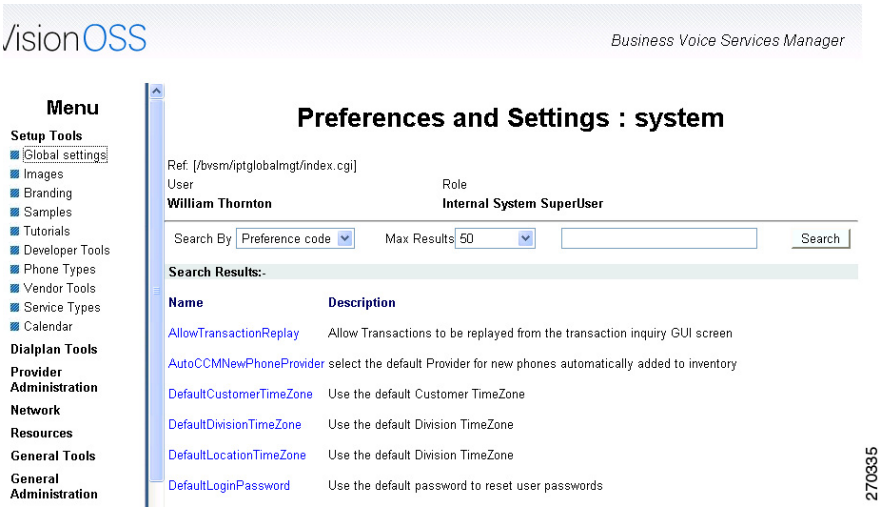
- Dial plan model loaders—Including settings for BVSM, and dial plans for Cisco PGW, and Cisco Unified CM dial
- Configuration loaders—Provider, network, and reseller settings
- Customer loaders—Location, user, and phone data settings

Note The first sheet in the Excel workbook containing a bulk loader must contain the BVSM version number. The bulk loader will only be uploaded if the version number corresponds to the BVSM version of the Hosted UCS platform.

Dial Plan Model Loaders

Dial plan models should be loaded first. To display the sample dial plan model loaders, click the **Configuration Model** option on the Dialplan Tools menu (see Figure 4-1).

Figure 4-1 Dialplan Tools—Configuration Models Option



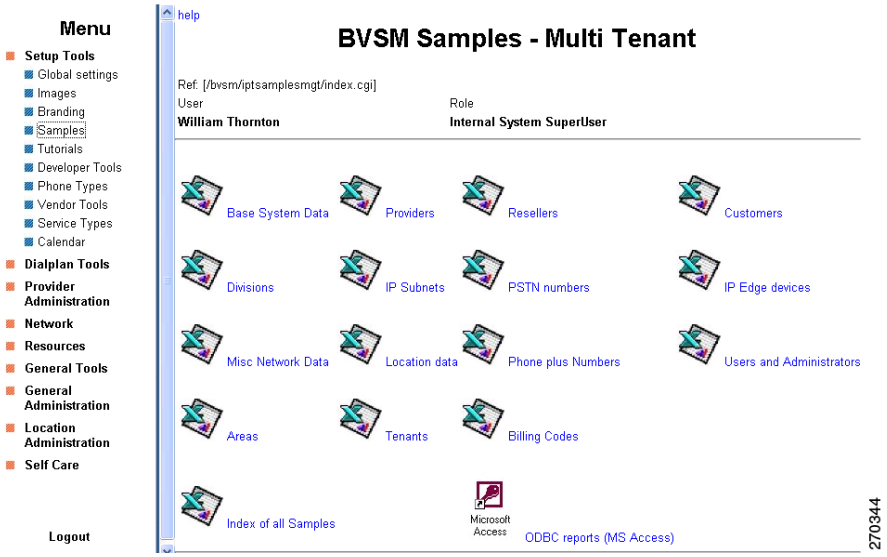
Note Do not make any changes to the dial plan models without specific instructions from your system integrator, VisionOSS, or the Cisco Hosted UCS technical design team.

Configuration Loader

The configuration loader contains the network configuration data. This defines the Hosted UCS network components, individual component configuration, and the various platform-wide associations, sets, and groups.

To display the sample network and provider loaders, click the **Samples** option under the Setup Tools menu (see Figure 4-2).

Figure 4-2 Setup Tools—Samples Option



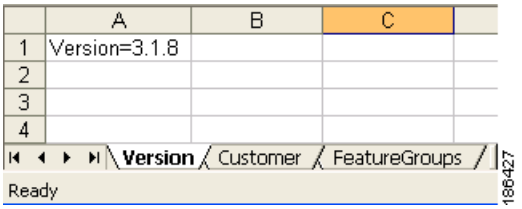
To save the spreadsheets provided by the Samples option, right-click on the Excel icon and select **Save As**. You can freely explore and experiment with these bulk loaders, which are straightforward in design.

Before loading a production environment with a large amount of data, experiment by loading a small amount of data and use the BVSM GUI options to explore the effects on the system configuration.

Note The sample bulk data is provided only as a general reference point. It is recommended that you contact VisionOSS or Cisco Advanced Services for the most current sample bulk data as your starting point, such as the VS-R2 Reference Bulkloader set available from VisionOSS.

Figure 4-3 shows the worksheet tabs in the Customer sample bulk data workbook.

Figure 4-3 Customer Bulk Data Workbook—Version Tab



The sample customer bulk data workbook includes three tabs:

- Version—This worksheet must contain a single entry indicating the BVSM version number that you are using for uploading the bulk data.
- Customer—This worksheet contains the bulk customer data (see Figure 4-4)
- FeatureGroups—This worksheet lets you load bulk data for feature groups, which are a combination of features required for all users or phones. (see Figure 4-5)

Figure 4-4 Customer Bulk Data Workbook—Customer Tab

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	#	CUSTOMER - DATA ENTRY WORKSHEET														
2	#			Note: '#' = a comment line												
3	#															
4	#					Company Main Address							Company Contact Name			
5	#	Provider	Reseller/ Channel	Company or BU Name (Short	Extended Name	Address 1	Address 2/Town	Address 3	City /County /State	State	Post Code /Zip Code	Country Code (3-digit ISO)	Title	First Name	Last Name	Telephone Number
6	#															
7	#															
8		Acme	Swiss Marketing	Carols Dresses	Carols Dresses	Sample-Reseller	PO Box 76	The warren	Doha	Pella	RG2 6GB	GBR	Mr	Prakash	Mohapatra	+974 455 8888
9	#															
10		Acme	Swiss Marketing	Bills Bolts	Bills Wonderful	150 Moorgate	The City	Left bank	Doha	Tstate	EC1Y 5TR	GBR	Mr	Andy	Gates	+974 456 7800
11	#															
12	#															
13	#															
14	#															
15	#															
16	#															
17	#	NO FURTHER DATA														
18	#											ISO List (Short List)				
19	#															
20	#										Australia	AUS	61			
21	#										Austria	AUT	43			
22	#										Bahrain	BHR	973			

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Each column in this worksheet allows entry of a specific customer attribute, while each row allows entry of all customer attributes for a single customer. Comments are marked by a pound sign (#) in Column A. The information on rows beginning with # is only for documentation and is not included when the bulk data is loaded.

Figure 4-5 Customer Bulk Data Workbook—FeatureGroups Tab

	A	B	C	D	E
1	#	CUSTOMER FEATURE GROUPS - DATA ENTRY WORKSHEET			
2	#			Note: '#' = a comment line	
3	#				
4	#				
5	#	Provider	Reseller/ Channel	Company or BU Name (Short Name)	Feature Group Template
6	#				
7	#				
8		Acme	Swiss Marketing	Carols Dresses Limited	Office Phone
9		Acme	Swiss Marketing	Carols Dresses Limited	Executive Phone
10	#				
11		Acme	Swiss Marketing	Bills Bolts	Office Phone
12	#				

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Feature Groups are a combination of features required for all users or phones. The features included in the feature group, such as voice mail, call forwarding, and so forth, can be enabled or disabled, based on the needs of a specific customer.

To view Feature Group configuration, use the BVSM **General Administration > Feature Groups** option. In the right pane that appears, you can view the features for a specific user or phone profile. To view the feature templates, go to **Provider Administration > Feature Templates**.

Customer Loader

The customer loader contains the required customer data, including the following:

- Feature group templates
- Area codes
- Customers
- Customer feature groups
- Customer preferences
- Edge devices
- IP subnets

- Divisions
- Locations
- Tenants
- Billing codes
- Areas
- Location preferences
- DID/DDI mapping
- Users
- Phones
- Phone-user association
- Mobility profiles
- Speed dials
- Voice mail settings
- Telephony settings
- Pickup groups
- Number groups and hunt groups
- Analog devices

Although sample loaders are available from the Setup menu, customer data is unique and must be collected from the customer. However, sample customer data for testing purposes can be copied from the sample bulk loader sets, or the VS-R2 Reference Bulk-loader Sets available from VisionOSS.

Performing the Initial Configuration

This section describes the steps to set up and load the Hosted UCS platform components. This section includes the following topics:

Overview

Before loading bulk data, complete the prerequisites described in Chapter 1, "Introducing Cisco Hosted Unified Communications Services," and apply the static configuration described in Chapter 2, "Configuring Hosted Unified Communications Services Components Before Loading Bulk Data."

The procedures in this section assume that a set of BVSM loaders, including three Excel workbooks, have been created for the target Hosted UCS platform. These should be pre-tested in simulation (manual) mode.

It is recommended that you copy your loader sets from previously proven bulk loader sets (for example, the VS-R2 Bulkloader Reference set) and then test load the bulk loader workbook into a test platform before loading to a production platform.

The following is the order in which the bulk data must be loaded to BVSM:

1. Dial plan model loader workbook
2. Configuration workbook
3. Customer workbook

Note Verify that there are no BVSM bulk loader transaction failures after completing each step. Resolve any issues (or get help) before proceeding to the next step.

Tip Use your browser search command to search for "; F" to check that there are no failures on the BVSM transaction page.

Loading the Dial Plan Model Workbook

Select the correct model loader for the target platform. For example, to set up a multi-national dial plan on a Hosted UCS platform, select **BVSMv318-1-VS-R2-5-1B–Model Loader-BVSM-PGW-CCM-IPU-1-1**.

To use bulk data loaders use the **General Tools > Deployment Tools** menu and the **Dialplan Tools > Configuration Models for model loaders** options.

To load the dial plan model workbook, complete the following steps.

Procedure

Step 1 Login to BVSM.

The default user account is *bvsm* and the default password is *password*.

Step 2 To load the system administrators settings choose **Load Admins**.

Step 3 Logout and login with a valid system administrator account; for example, *hbarton_bvsm*.

For security, do *not* choose the *bvsm* user account to load a Hosted UCS production platform.

Step 4 Change the *bvsm* user password to a secure password.

Step 5 To load the PrepareBVSM (BVSMAPI) worksheet, choose **Load Raw API Commands (Base Data).**

This loads the global settings, phone button templates types, phone types, CoS service types, dial plan number construction, and hardware sets.

Step 6 To load the Cisco PGW dial plan model, go to **Dialplan Tools > Configuration Models >** Loa**d PGW mml**.

Step 7 To load the Cisco Unified CM dial plan model, go to **Dialplan Tools > Configuration Models > Load Cisco Unified CM**.

Step 8 (Optional) Load the following workbooks for the optional Hosted UCS platform components from the **Dialplan Tools > Configuration Models** menu:

- IP Unity dial plan—**Load IPUnity**
- 36xx model (for Gatekeeper support for large enterprise dial plans)—**Load 36xx IOS**
- 2801 model—**Load Cisco2801 IOS models for C2801FXS analog gateways**
- VG224 model—**Load CiscoVG224 IOS models**
- IOSDevice model—**Load CiscoSRST IOS models for local gateway support**.

- VoiceRite CMD model—**Load VoiceRite CMD models**
- Netwise model—**Load Netwise models**

Loading the Configuration Workbook

Select the correct configuration workbook loader for the target platform. For example, to load the platform configuration for the VS-R2 Hosted UCS Reference Platform, select **BVSMv318-2-VS-R2 – Bulk Entry Configuration Workbook-1-1**.

To use bulk data loaders, use the **General Tools > Deployment Tools** option.

To load the configuration workbooks, complete the following procedure:

Procedure

Step 1 To load the Provider worksheet, choose **Load Providers**.

Step 2 To load the Admin worksheet choose **Load Admins.**

This adds the required provider admin users as needed by customer and the systems integrator).

Step 3 To load the ProviderNetwork#1, choose edit the tab to remove the "#1" so that it becomes *ProviderNetwork* and re-save the worksheet and choose **Load Network**.

This loads the Hosted UCS Network configuration. Ensure that there are no bulk-loader errors.

Step 4 Click the **ProviderNetwork** tab and change it back to *ProviderNetwork#1* on completion.

Note Do not add countries or IP Unity hardware group or "connect" IPUnity with Cisco PGWs and Cisco Unified CMs until after the Cisco PGW is loaded and in automated mode.

Step 5 Confirm that each Cisco PGW has been configured with the required static configuration.

Step 6 Change each Cisco PGW from manual to automated mode.

Step 7 To load and initialize each Cisco PGW, choose **BVSM PGW Management**.

Step 8 To initialize local gateway support, login to PGW and check for successful load.

For verification steps, refer to Verifying Bulk Loading, page 4-16.

Step 9 Change the Cisco Unified CM cluster from manual to automated mode.

Step 10 Confirm Cisco Unified CM pre-load checks are complete.

Step 11 Save a backup and restore system (BARS) backup of the static configuration.

Step 12 To load the MediaResourceGroups and MediaResourceGroupLists, choose the APIs in Provider Network#2.

Note This is loaded before the Cisco Unified CM InitIPPBX in case the Media Resource Group Lists (MRGLs) are required in the Cisco Unified CM static configuration (for example, by the external trunks).

Step 13 To load the Cisco Unified CM, choose **Cisco Unified CM Management** and complete the post-load checks.

Post-load checks include deletion of Publisher from Cisco Unified CM (subscriber list) if the Publisher server is not being used as a Subscriber server.

Step 14 After completing the BVSM load, restart Cisco Unified CM cluster servers, using the Windows **Restart** option.

Step 15 Change each BVSM-DHCP server from manual to automated mode.

Step 16 Load the BVSM-DHCP servers and verify that loading was successful.

Step 17 Choose **Add Country** and load **IPUnity hardware group**

Step 18 To select **connections** and **sets** from Provider Network#2 tab, choose **Load Network**.

Note Do *not* add the voice mail resource before adding a customer location.

To add a Cisco Unified CM cluster later, you must repeat Step 17, as follows:

a. Change the Cisco PGWs and *all* Cisco Unified CMs to manual mode

b. Delete Countries

c. Change the new Cisco Unified CM to automated mode

d. Add Country

e. Change the Cisco PGWs and other Cisco Unified CMs back to automated mode

Step 19 To load the reseller worksheet, choose **load resellers**.

Step 20 To load the phone-inv worksheet, choose **load phones**.

This adds the phone MAC addresses and phone types. This step is required to allow phone auto-discovery. It is not required if using promiscuous-mode provisioning or using the phone-inv loader in the customer workbook to load phones directly into a location.

Loading the Customer Workbook

Select the correct customer workbook loader for the target platform. For example, to load the customer data for the VS-R2 Hosted UCS Reference Platform, select **BVSMv318-3-VS-R2–Bulk Entry Customer Workbook-1-1**.

To use bulk data loaders, use the **General Tools > Deployment Tools** menu options.

To load the customer model workbook, complete the following steps.

Procedure

Step 1 Load the FeatureGroup templates.

Add SoftkeyTemplate definitions, if required.

Step 2 Load customers using the customer worksheet.

When first loading, load one customer and look for successful PGW configuration before adding multiple customers.

Make sure that the required inter-site-prefix is set.

Step 3 Load area codes and connect area codes to the gateway.

Step 4 Load FeatureGroups using the customer loader, selecting from available FeatureGroup templates.

Note FeatureGroups can be loaded at the same time or independently as bulk loading customers.

Step 5 Load customer settings.

Note Do not load voice mail services for a customer until you have added at least one location.

Step 6 Load edge devices using the technician edge device loader.

Step 7 Load subnets using the load subnet loader.

Step 8 Verify that DHCP helper addresses are loaded on the edge devices.

If subnets are supported by VOSS-DHCP servers, they should be set as **Managed**.

If subnets are supported by a local DHCP server, they should be loaded as **UnManaged**

For example, VPN subnets used in conjunction with Cisco IP Communicator softphones.

Step 9 Load divisions.

Step 10 Load locations.

Load only one location initially. If successful, load any additional locations.

Check for correct load into PGW and Cisco Unified CM.

Note This step may take several minutes per location, depending on the complexity of the country dial plan and the number of transactions required.

Step 11 To load BusinessPark microtenants, choose **tenants**.

Step 12 To place billing codes in inventory choose **Inventory Billing Codes**.

Step 13 To configure locations for BusinessPark microtenants, choose **AssignLocTenant**.

Step 14 To configure areas for BusinessPark microtenants, choose **areas**.

Step 15 To assign billing codes to billable entities choose **AssignBillingCodes**.

Step 16 Load customer and location administrators, if required.

Step 17 Load location preference settings.

Step 18 Load voice-mail services, if required, at the customer resource and location levels.

Use this loader for the customer VM site code (for example, 888) and the customer VM service name. It may be easier to configure to the other voice mail services using the following BVSM GUI options:

- **Enable Pilot Numbers**
- **Enable voice mail CoSs**
- **Assign CustomerPilotNumber**
- **Associate External DDI with VM Pilot Number**
- **Provision VM-Location service**

Step 19 To load DDI ranges, choose **DDIMappings**.

Step 20 Load users, as required.

Step 21 Load phones and phone configuration profiles, as required.

Step 22 Load user-mobility profiles and user-phone associations, as required.

Step 23 Load voicemail boxes, if required.

Note You must precalculate the Full Internal Number (FINT) of an extension number to bulk load voicemail boxes.

Step 24 Load analog gateways, if required.

Step 25 Load speed dials, if required.

Step 26 Load pick-up groups, if required.

Step 27 Load Number groups and hunt groups, if required.

Testing and Verifying Initial Configuration

This section includes the following topics:

Testing the Platform in the Data Center

To test the configuration in the data center, complete the following steps.

Procedure

Step 1 Preconfigure a Cisco line-powered switch in the data center lab and connect test phones.

Ensure that DHCP helper addresses are set.

Step 2 Load a test customer and location using the designated edge device in the data center.

Step 3 Load, provision, and register the test phones.

Step 4 Verify that the phones physically register with the Cisco Unified CM subscriber.

Step 5 Test the platform by making calls on the test phone.

Testing the Platform in the Network

To test the configuration in the live network, complete the following steps.

Procedure

Step 1 Preconfigure a Cisco line-powered switch on the physical provider network and connect test phones.

Step 2 Load a test customer and location using the designated edge device on the network.

Step 3 Load, provision, and register the phones.

Step 4 Check that the phones physically register with the Cisco Unified CM subscriber. If the phones work in the lab but not on the network, troubleshoot the network, including the firewall.

Step 5 Test the platform by making calls on the test phone.

Verifying Bulk Loading

This section describes the procedures for verifying that the bulk data has been completed successfully:

- Verify that BVSM indicates successful loading with no failure messages.

  Load failure is normally due to incorrect static configuration settings.
- Look for: Request Succeeded—InitIPPBX

Note After loading the Cisco Unified CM publisher from BVSM, Cisco recommends restarting all the Cisco Unified CM cluster servers (Windows Restart).

Verifying Cisco Unified Communications Manager Publisher from the System Menu

To verify each instance of Cisco Unified CM Publisher, complete the following steps from the System menu of each Cisco Unified CM Publisher:

Procedure

Step 1 For Cisco Unified CM, verify that only subscriber servers are configured as Cisco Unified CMs.

Note In large clusters, BVSM configures *all* the cluster servers as Cisco Unified CM (subscribers), and it is necessary to delete out Publisher, TFTP, and MOH servers.

The maximum permitted number of Cisco Unified CM servers is eight.

Step 2 For Cisco Unified CM Group, verify each cluster PhonesGroup and TrunkGroup.

Step 3 For Region, verify Default and Trunk configuration.

Step 4 For Device Pool, verify each trunk; for example, MC.

Step 5 For Location, verify each location.

Verifying Cisco Unified Communications Manager Publisher from the Services Menu

To verify each instance of Cisco Unified CM Publisher, complete the following steps from the Services menu of each Cisco Unified CM Publisher:

Procedure

Step 1 For Media Resource–Media Resource Group, verify that the correct MRGs have been loaded and that these contain the correct resources.

For example, VS-R2-C1-Phones-MRG and VS-R2-C1-Trunks-MRG, containing VS-R2-CONF-1 and MOH_VS-R2-C1-P.

Note It is important to use fully-defined media resource group (MRG) and MRG list (MRGL) naming conventions when supporting multiple clusters.

Step 2 For Media Resource–Media Resource Group List, verify that the correct MRGLs have been loaded and that these contain the correct MRGs.

For example, VS-R2-C1-Phones-MRGL and VS-R2-C1-Trunks-MRGL.

Verifying Cisco Unified Communications Manager Publisher From the Devices Menu

To verify each instance of Cisco Unified CM Publisher, complete the following steps from the Devices menu of each Cisco Unified CM Publisher.

Procedure

Step 1 For gatekeepers, verify that a loaded gatekeeper exists.

Step 2 For trunks, verify that an external trunk exists.

You need to reboot the Cisco Unified CM servers supporting the trunk to ensure that the Cisco Unified CM cluster registers with the gatekeeper.

Step 3 Logon to the gatekeeper (for example, using Telnet), and enter:

```
show gatekeeper endpoints
```

Enter the following command to verify that you can see trunks from all subscribers.

```
show gatekeeper status cluster
```

Step 4 For Device Settings–Device Profile Default, verify that the phone button template on the 7940 default profile has been set to BVSM 7940.

Step 5 For Device Settings–Device Profile Default, verify that 15 Device Profiles have been set: Cisco 7902 profile through to Cisco ATA 186 profile.

Verifying Cisco PGW After Loading Bulk Data

To check for BVSM-TO-PGW transaction errors, complete the following steps.

Procedure

Step 1 Use SSH to access PGW (for example, using PuTTY) and log in.

For example user ID *mgcusr* and password, *cisco*.

Step 2 Enter the following commands to login, for example, to the GL-D-PGW host:

```
GL-D-PGW% cd ../etc
GL-D-PGW% cd cust_specific
GL-D-PGW% ls
```

Step 3 To display a list of PGW log files, enter the following command:

```
GL-D-PGW% grep Error  *.output
```

Step 4 To view a particular error file and look for Warnings and Errors, enter the following command.

```
GL-D-PGW% more [filename*]   for example, more 15119aaaaad*
```

Step 5 To confirm that the dial plans exist on the active and standby Cisco PGW, enter the following **mml** command:

```
prov-exp:all:dirname="midrange”
```

Replace *mydirname* with any name you want to use.

Step 6 Enter the following command:

```
cd/opt/CiscoMGC/etc/cust_specific/mydirname
```

Step 7 Look for files such as ICCM.mml, which are the dial plans.

Step 8 Ensure that the same files are present on both active and standby.

Step 9 If not, choose **prov-sync** on the active, or restart the standby.

Step 10 Ensure that ICCM has been populated.

Step 11 View the mml log for error messages.

```
cd /opt/CiscoMGC/var/log
```

Step 12 To list error messages, enter the following command:

```
grep -I DENY mml*
```

This will list any errors.

Step 13 View these files, looking for DENY to identify what failed.

CHAPTER 5

Backing Up and Reinitializing Hosted Unified Communications Services Components

This chapter explains how to backup and reinitialize the Hosted Unified Communications Services (Hosted UCS) platform components. It also provides some recommendations for upgrading to a newer version. This chapter includes the following sections:

Backing Up Cisco Unified Communications Manager and Cisco PGW

This section outlines the process for storing a known, reliable configuration before a platform upgrade and includes the following topics:

After backup, the stored configuration can be restored onto a Hosted UCS platform component, if required. For example, restoring the initial static configuration for the Cisco Unified CM or Cisco PGW eliminates the time-consuming reconfiguration process.

Backing-up Cisco Unified Communications Manager

To use BARS software for backing up and restoring service for Cisco Unified CM, complete the following steps.

Procedure

Step 1 Load the BARS software: **MCSBackupSystem.4-0-8.exe (CCM4.1)**.

Note Download the latest version of BARS that is supported for use with Cisco Unified CM 4.2 and higher.

Note The version of Cisco Unified CM installed, Cisco Unified CM 4.2(3), has not been verified to function with BARS 4.0.9000. You should upgrade the BARS software to ensure complete compatibility; otherwise, you could experience data loss during restore.

Step 2 Create c:\BARSBackup directory on Publisher (test platforms only).

Step 3 Choose **Start > Program Files > Cisco BARS > Cisco BARS**.

Step 4 On the BARS menu, select **Backup > Data Source Servers**.

Step 5 Add a new server (enter the Publisher details).

Step 6 Backup only Cisco Unified CM, and click **Finish**.

Step 7 Choose **Backup > Storage Location** and enter the name of the backup folder (via **Browse**), and click **Update**.

Step 8 Choose **Backup > Scheduler**, and disable Scheduler.

Step 9 Set the frequency to Sunday only and Preserve latest 15 TAR files.

This should prevent accidentally updating the backup for at least 15 weeks. Monitor the backup log to check that TAR files do not reach 15.

Step 10 Choose **Backup > BackupNow**.

After approximately five minutes, you should see the TAR file in Backup File.

Step 11 Make an extra backup file copy in the C: directory.

Backing Up the Cisco PGW

To perform a manual backup operation, enter the following UNIX command on the Cisco MGC:

```
mgcbackup -d path [-r retries -t retry_time]
```

Where:

- *path*—The full path of the directory in which to store the backup file; for example, a directory on a remote server that you have mounted on your system, or the local tape drive.

Note Cisco recommends that you do not store backup files on your local Cisco MGC host, because storage of backup files on the local host reduces the amount of disk space available to process call data and does not ensure that the data is safe in the event of a natural disaster.

- *retries*—The number of times to check for an active provisioning session on the Cisco MGC before aborting the backup operation. The default value is 0 and the maximum value is 100.

Note A backup operation cannot start while there is an active provisioning session on the Cisco MGC.

- *retry_time*—The number of seconds to wait between checks for an active provisioning session on the Cisco MGC. The default value is 30 seconds and the maximum value is 3600 seconds.

For example, to perform a manual backup operation where the backup file is saved to a directory path called /dev/rmt/h0, with a maximum of three attempts, each 60 seconds apart, you would enter the following UNIX command:

```
mgcbackup -d /dev/rmt/h0 -r 3 -t 60
```

The backup file is stored in the specified directory path in the following format:

`mgc_hostname_yyyymmdd_hhmmss_backup.tar`

Where:

- *hostname*—The name of the Cisco MGC host, such as MGC-01.
- *yyyymmdd*—The date the backup file is created, in a year-month-day format, such as 20011130.
- *hhmmss*—The time the backup file is created, in an hour-minute-second format, such as 115923.

For more information on backup operations, see the "Backing Up System Software" in Chapter 3 of the *Cisco Media Gateway Controller Software Release 9 Operations, Maintenance, and Troubleshooting Guide* at the following URL: http://www.cisco.com/en/US/docs/voice_ip_comm/pgw/9/maintenance/guide/omtguide.html.

Restoring Cisco Unified Communications Manager and Cisco PGW Configuration

This section explains how to restore the configuration for Cisco Unified CM and the Cisco PGW. It includes the following topics:

Restoring Cisco Unified Communications Manager Configuration

To restore Cisco Unified CM, follow the BARS software restore process and then restart the Publisher and the Subscribers.

Restoring the Cisco PGW Configuration

This restoration method uses a script to restore the configuration data for the Cisco MGC software, select UNIX administrative files, and the Main Memory Database (MMDB).

Note These procedures assume that you have backed up your system configuration data regularly. The procedures for system configuration backup can be found in Backing Up the Cisco PGW, page 5-3.

Listing the Cisco PGW Backup Files

To list the backup files in a particular directory path, enter the following UNIX command on the Cisco MGC:

```
mgcrestore -d path -l
```

Where *path* is the directory path in which you have stored backup files, such as a directory on a remote server or a local tape drive.

The system returns a response similar to the following:

```
Backup files in /var/cisco
------------------------------------------------
mgc_venus_20011010_153003_backup.tar
mgc_venus_20011011_153003_backup.tar
mgc_venus_20011012_153003_backup.tar
```

Restoring the Cisco PGW Backup File

To restore the configuration data stored in a particular backup file, enter the following UNIX command on the affected Cisco MGC to run the restore script:

mgcrestore -d *path* **-f** *filename*

Where:

- *path*—The directory path to the location where your backup files are stored.
- *filename*—The file name of the backup file you want to restore.

For example, to restore a backup file called mgc_venus_20011012_153003_backup.tar stored in a directory path called /var/cisco, you would enter the following command:

```
mgcrestore -d /var/cisco -f mgc_venus_20011012_153003_backup.tar
```

For more information on backup operations, see "Restoring Procedures for Cisco MGC Software Release 9.1(5) and up" in Chapter 8 of the Cisco Media Gateway Controller Software *Release 9 Operations, Maintenance, and Troubleshooting Guide* at the following URL: http://www.cisco.com/en/US/docs/voice_ip_comm/pgw/9/maintenance/guide/omtguide.html.

Restoring the Cisco PGW to Clean Status

To clear the Cisco PGW and restore it to its original static configuration, complete the following steps.

Procedure

Step 1 Logon to the Cisco PGW using Reflexion Host – Unix and Digital.

On test systems: username=*mgcusr.* password=*cisco*.

Step 2 Enter the text shown in boldface:

```
GL-D-PGW% mml
GL-D-PGW mml>
prov-sta::srcver="pure-static",dstver="iBVSconfig",confirm
  MGC-01 - Media Gateway Controller 2005-06-30 14:09:55.352 BST
M  COMPLD
 "PROV-STA"
;
GL-D-PGW mml> prov-cpy
   MGC-01 - Media Gateway Controller 2005-06-30 14:10:02.164 BST
M  COMPLD
"PROV-CPY"
;
GL-D-PGW mml> quit
```

In this example, the entry iBVSconfig is a temporary name. The exact name is not important.

Backing up and Restoring BVSM

The BVSM automatically backups the database within the cluster and between active and standby BVSM servers. BVSM always maintains four copies of the database, two in each headend. If a copy of the database needs to be saved offsite, you can set up an export copy of the database.

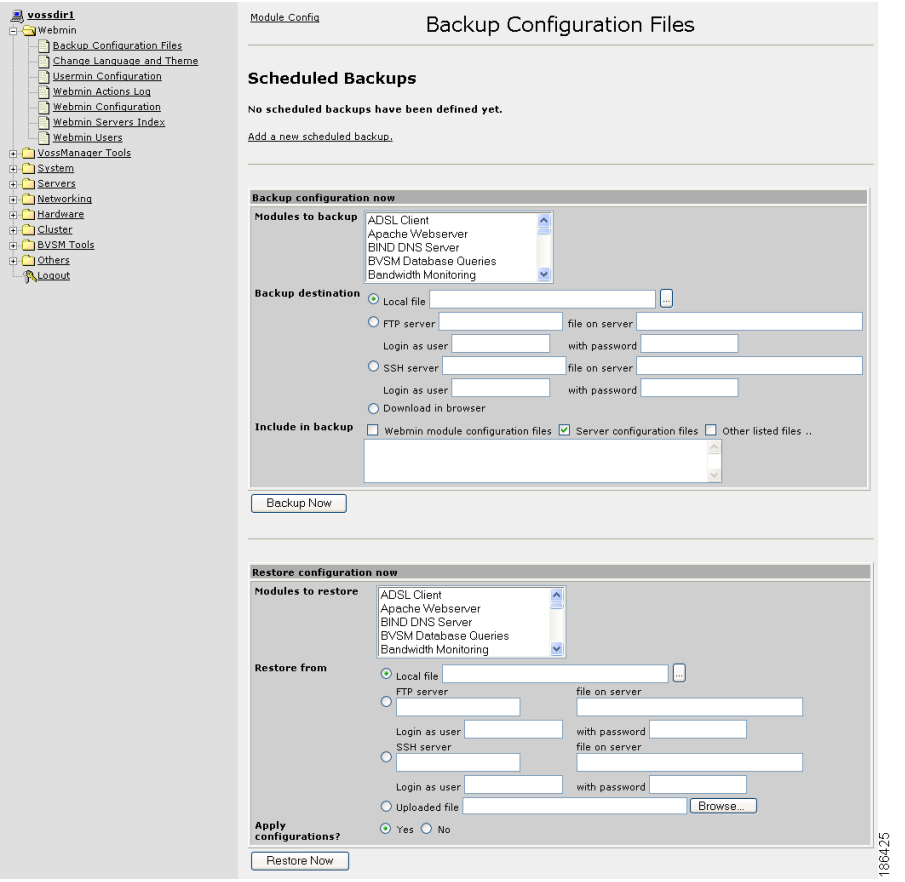
In most cases to date, offsite backup has occurred once every 24 hours. This should occur at a time of low provisioning traffic, such as in the early hours of the morning.

For the backup to be useful as part of a disaster recovery plan, the BVSM backup needs to bein a consistent state with those taken for the Cisco PGW and Cisco Unified CM, along with IP Unity and Netwise if they are included in the Hosted UCS platform. To ensure a consistent state, there should be a BVSM transaction freeze while the platform is being backed up.

If all the backups are taken at the same time, it becomes possible to time-shift the entire platform back to the latest backup without any misalignment between BVSM and the servers that it controls.

The BVSM export is performed from the screen shown in Figure 5-1.

Figure 5-1 Backup Configuration Files (Webmin Interface)



Clearing a Cisco Unified Communications Manager Cluster

This section describes the process for clearing a Cisco Unified CM cluster, in preparation to re-build the Hosted UCS platform.

The order of the clearing steps is not important and further clearing steps may be required on some Hosted UCS platforms. For example, you may need to delete organizations within the Movius server, using the Movius server Sysconfig GUI.

When you start the rebuild process, you must complete all stages. It is not possible to go back after you have cleared one component in the architecture.

You must clear the Cisco Unified CM before a rebuild to ensure that there will be no data duplication or mismatch between BVSM and the Cisco Unified CM.

You can quickly restore the Cisco Unified CM publisher to its initial state by restoring a BARS backup file.

When no BARS backup file is available, to clear the Cisco Unified CM and avoid any interdependency issues, complete the following steps.

Procedure

Step 1 Delete phone devices.

Step 2 Choose 50 phones for the search list to allow deletion of 50 phones at a time.

Step 3 From the **RoutePlan > Translation Patterns** menu, delete Translation Patterns, 50 at a time.

Step 4 From the **Device > CTI Route Points** menu, delete any CTI route points used.

Step 5 From the **RoutePlan > Route/Hunt > Route Pattern** menu, delete all route patterns.

Step 6 From the **RoutePlan > Route/Hunt > Route List** menu, delete all route lists.

Step 7 From the **RoutePlan > Route/Hunt > Route Group** menu, delete all route groups.

Step 8 From the **Device > Trunks** menu, delete all trunks.

Step 9 From the **Device > Gatekeepers** menu, delete all gatekeepers.

Step 10 From the **Device > Gateways** menu, delete all gateways.

Step 11 From the **Service > Media Resources > MediaResourceGroupList** menu, delete all media resource group lists.

Step 12 From the **Service > Media Resources > MediaResourceGroup** menu, delete all media resource groups.

Step 13 From the **System > Locations** menu, delete all locations (show 50 at a time).

Step 14 From the **Service > Media Resource > Conference Bridge** menu, delete any conference bridges that are not required.

Keep the conference bridges that are required by BVSM.

Step 15 From the **Service > CiscoCM Attendant Console > Pilot Points** menu, delete any pilot points used.

Step 16 From the **System > Device Pool** menu, delete all device pools, except Default.

Step 17 From the **System > Region** menu, delete all regions except Default.

Step 18 From the **RoutePlan > Route/Hunt > Hunt Pilot** menu, delete all hunt pilots used.

Step 19 From the **RoutePlan > Route/Hunt > Hunt List** menu, delete any hunt lists used.

Step 20 From the **RoutePlan > Route/Hunt > Line Group** menu, delete any line groups used.

Step 21 Delete all users, either one-by-one via the CCMAdmin group or in bulk using the BAT Tool facilities.

Step 22 From the **Feature > Call Pickup** menu, delete any call pickup numbers used.

Step 23 From the **Feature > Call Park** menu, delete an call park numbers used.

Step 24 From the **System > CCM Groups** menu, delete all Cisco Unified CM groups except Default.

Step 25 From the **Device > Device Settings > Device Profile** menu, delete all profiles, including “Logout” sevid.

Step 26 From the **RoutePlan > Route Plan Report** menu, search for unassigned DNs and select **Delete All Found Items** at the bottom of the search page.

This allows deletion of 150 unassigned DNs at a time.

Step 27 For voice-mail profiles, voice-mail pilot numbers, and MWI numbers, unless these need to be maintained.

Step 28 From the **RoutePlan > Class of Control > Calling Search Space** menu, delete all CSSs except **IncomingToCluster**.

Step 29 From the **RoutePlan > Class of Control > Partitions** menu, delete all partitions.

Step 30 From the **RoutePlan > Route Plan Report** menu, search for assigned DNs and delete DNs one at a time.

Note If issues occur, use the dependency record feature to search for components that might be preventing deletion of records.

Initializing the Cisco PGW

This section describes the clearing process for the Cisco PGW by deleting the BVSM-created file before rebuilding a Hosted UCS platform.

You must clear the Cisco PGW before reloading a Hosted UCS platform. Clearing the Cisco PGW means clearing out BVSM data but not other configuration information that may have been set up on the Cisco PGW servers independently of BVSM.

To initialize the Cisco PGW, complete the following steps.

Procedure

Step 1 Logon to the active Cisco PGW.

Log in over Telnet or SSH, using a terminal console program, such as PuTTY.

On test systems, the user account/password is mgcusr/cisco.

To configure the up arrow operate to add back previous lines, use the following:

```
PGW % setenv TERM vt100 ()
```

Step 2 To verify that you are logged into the active Cisco PGW, enter the following commands:

```
PGW % mml
mml > rtrv-ne   ()
```

Step 3 To create a binary backup to allow rollback if required, choose your own filename.

For example, *170106-01bin*.

```
mml> prov-sta::srcver="active",dstver="170106-01bin"
mml> prov-stp
```

Step 4 To create a text backup for diagnostics if required, choose your own filename.

For example,***170106-01text*.**

```
mml>prov-exp:all:dirname="170106-01text"
```

Step 5 Restore the process, if rollback is required:

```
mml> prov-sta::srcver="170106-01bin ",dstver="170106-03bin "
mml> prov-dply (Dual server PGW platform)
or
mml> prov-cpy (Single server PGW platform)
```

Step 6 For the Cisco PGW reset process (dial plans only), enter the following commands:

```
mml> quit
% cd /opt/CiscoMGC/etc/cust_specific
% ls -la
```

This gets a list of files stored including Text file.

```
% cd /opt/CiscoMGC/etc/cust_specific/170106-01text
% ls
```

Step 7 Make a note for all four-character mml files loaded by BVSM.

For example, copy ICCM.mml, P974.mml, XXXX.mml, XXXX.mml into Notepad.

```
% mml
mml> prov-sta::srcver="active",dstver="170106-02bin"
mml> numan-dlt:dialplan:custgrpid="XXXX"
```

where *XXXX* is the name of each four-character mml file.

Step 8 Repeat this process until all XXXX.mml files have been deleted. If you hit a dependency, go to the next file and cycle through until all files are deleted.

The following is a sample delete order from TS-R1-MT platform (03 Feb 06):

```
ICCM.mml
0001.mml
0004.mml
0007.mml
000A.mml
000D.mml
000G.mml
```

```
000J.mml
000M.mml
000P.mml
CTRY.mml
IDIN.mml
N049.mml
P049.mml
R049.mml
V001.mml
V002.mml
ROUT.mml
0002.mml
0005.mml
0008.mml
000B.mml
000E.mml
000H.mml
000K.mml
000N.mml
000Q.mml
E049.mml
EGRV.mml
```

Step 9 Reload the ICCM dial plan as an empty file:

```
mml> numan-add:dialplan:custgrpid="ICCM",overdec="YES"

mml> prov-dply (Dual server PGW platform)
or
mml> prov-cpy (Single server PGW platform)
```

Step 10 On completion, take a further backup of the Cisco PGW.

This will be the static configuration of the Cisco PGW if, for example, the Cisco PGW needs to cleared by deleting static settings.

Step 11 To create a binary back-up to allow rollback if required, choose your own filename.

For example, *VSR2-151007Static-HB-01bin*.

```
mml> prov-sta::srcver="active",dstver="170106-01bin"
mml> prov-stp
```

Initializing BVSM

This section explains how to clear an existing BVSM platform that has already been loaded with dial plans and data.

Clear the BVSM database when you are planning to rebuild the Hosted UCS platform. The clearing process is much faster than deleting all the data manually through the BVSM GUI and even faster than the Delete Bulk Loader tool or Operations tools. This is especially the case if BVSM has many customers and locations already loaded.

To clear a BVSM cluster, complete the following steps.

Procedure

Step 1 Logon to VOSSDir1 Webmin with the following URL in the location field of a web browser:

https://*x.x.x.x*:**10000**

where *x.x.x.x* is the IP address of the VOSS1 server.

Note You will need to know the user ID and password.

Step 2 From the **Webmin** menu, select **BVSM Setup**.

Step 3 From the **Setup** submenu, select **BVSM Core Service Parameters**.

Step 4 Confirm that you are on the correct platform and only when you are sure, click **Destroy**.

The Destroy button deletes all data within BVSM and resets the database tables to the default status.

Caution There is no way to undo a destroy procedure, so be very careful you are on the correct server.

You only need to destroy VOSSDir1 because BVSM automatically replicates to the other servers.

Note You need to run a Migrate script after entering the Destroy command. This requires VOSS-Server command line access and must be carried out by a VisionOSS Support Engineer.

Step 5 Using SSH, access the VOSSDir1 server and login as route.

Step 6 Go to the Directory with the migration scripts by entering the following command:

cd /usr/local/bin/ipt

The required migration script is one version lower than the current one. For example, with BVSM 3.1.7 on the VOSSDir1 server, you need the migration of 316to317.

Step 7 To run, enter the following command:

```
./bvsm3_1_6to3_1_7migration.sh
```

APPENDIX A

Sample Hosted Unified Communications Services Build of Materials

This section covers the standard bill of materials (BOM) for Hosted Unified Communications Services (Hosted UCS) platforms. Each platform BOM differs based on the special requirements of each deployment.

This appendix contains the following sections:

BOM Tool

Cisco and VisionOSS have developed a special BOM tool that calculates the equipment requirements for a set of unique requirements. Users enter their requirements into a spreadsheet and the BOM Tool calculates the equipment requirements. This tool is available from the Cisco Hosted UCS product manager.

BOM Examples

This section contains the following topics:

Reference Platform BOM Example

Table A-1 contains a high-level BOM example for reference platforms.

Table A-1 High-Level BOM Example for Reference Platforms

Hardware Item	Hardware Platform	Vendor	Quantity
Cisco Unified CM	MCS 7825/7835	Cisco	2
PGW2200	SunFire V210/215 (or V120)	Sun	1
HSI	SunFire V210/215 (or V120)	Sun	1
Gatekeeper	2621XM Router	Cisco	1
PSTN gateway	AS5350	Cisco	1
PSTN simulation gateway	Catalyst 28XX + analog Ps	Cisco	1
Distribution switch	Catalyst 3560-48Port	Cisco	1
Line-powered switch	Catalyst 3560 POE	Cisco	1
Firewall	PIX 515E	Cisco	1
WLAN access point	Aeronet 1120	Cisco	1
IP Phones (testing)	7971, 7961, 7941, 7911, ATA185, 7936	Cisco	16
BVSM provisioning	m2010-FT series servers	VisionOSS	2
Management server	Eclipse NT Server	Datanet	1
Flat-panel display, keyboard, and mouse drawer unit	Tbc	tbc	1
KVM switch	Tbc	tbc	1
Power distribution	Tbc	tbc	1

Table A-1 High-Level BOM Example for Reference Platforms

24 U mobile rack unit	Tbc	tbc	1
Mobile shipping container for mobile rack	Tbc	tbc	1
Rack storage unit	Tbc	tbc	1

Production BOM Example

This section provides an example of a BOM for a 5000-seat Hosted UCS production platform (with licenses to 1000 ports).

Note Refer to Cisco and VisionOSS for the latest BOM Excel worksheets.

Table A-2 shows a sample BOM for the Cisco PGW 2200.

Table A-2 PGW 2200

Product	Description	Qty
PGW2200	Cisco PGW 2200 Softswitch Server Pair	1
SWP22-CC-RTU	PGW 2200 (Call Control) Voice or Dial RTU License, 1k Ports	1
SFB22-CC-9.6.1	PGW 2200 Application Software Ver 9.6(1) on CD	1
MGC-440-DC48-2	Redundant pair of SUN Netra 240 (AC or DC), 2 CPU, 4GB RAM	1
MGC-SUNOS-8DS	Sun Solaris V8 with Disk Suite	1

Table A-3 shows a sample BOM for the Cisco Unified CM 3.1.4.

Table A-3 Cisco Unified Communications Manager 3.1.4

Product	Description	Qty
Cisco Unified CM-4.2	Cisco Unified CM 4.2 Top Level Part Number	3/4
MCS-7845H-3.0-IPC1	MCS 7845H-3000 Dual Xeon 3.06, 4GB RAM,4-72GB	3/4

Table A-3 Cisco Unified Communications Manager 3.1.4

CAB-ACU	Power Cord UK	6/8
CM4.1-K9-7845	SW Cisco Unified CM 4.2, MCS-7845, 5000 Svr Usr Lic	3/5

Table A-4 shows a sample BOM for the HSI.

Table A-4 HSI

Product	Description	Qty
HSI	H.323 Signaling Interface	2
SFBHSI-4.2	HSI Application Software v4.2	2
MGC-120-AC or DC11-1	Non-Redundant Sun Netra v210 with 1 CPU, 2GB mem	2
MGC-SUNOS-8	Sun Solaris v8	2

Table A-5 shows a sample BOM for the media gateway.

Table A-5 Media Gateway

Product	Description	Qty
AS54HPX-16E1-480AC	AS5400HPX;16E1,492 ports, Dual AC,IP+ IOS,480 ENHVOX Lic	2
S54CP-12302T	Cisco AS5400 Series IOS IP PLUS	2
CAB-ACU	Power Cord UK	4
AS54HPX-AC-RPS	AS5400HPX Dual AC Power Supply	2
AS54-DFC-108NP	AS5400 108 Universal Port Card	8
AS54-DFC-60NP	AS5400 60 Universal Port Card	2
AS54-DFC-8CE1	AS5400 Octal E1/PRI DFC card	4
FR54H-ENHVOX-LIC	AS5400HPX IOS Enhanced Voice License Per Port	960
FR5X-LIC	AS5000 Software License Agreement	2
CAB-DFC-OCTAL-2MF	2 Meter 8 PRI DFC Cable - Female RJ45	4
MEM-128S-AS54	AS5400 128MB Shared I/O upgrade	2

Table A-5 Media Gateway

MEM-16BF-AS54HPX	AS5400HPX 16MB Boot Flash upgrade	2
MEM-512M-AS54	AS5400 512MB Main SDRAM upgrade	2
MEM-64F-AS54HPX	AS5400HPX 64MB System Flash upgrade	2
CAB-E1-RJ45BNC	E1 Cable RJ45 to Dual BNC (Unbalanced)	4

Table A-6 shows a sample BOM for the gatekeeper.

Table A-6 Gatekeeper

Product	Description	Qty
CISCO3745	3700 Series, 4-Slot, Dual FE, Multiservice Router 32F/256D	2
S374CU-12309	Cisco 3745 Ser IOS IP/H323	2
PWR-3745-DC-U	Universal power supply, 24/48 volts	2
PWR-3745-DC/2-U	Universal DC power supply for Cisco 3745	2
MEM3745-32U64CF	32 to 64MB compact flash factory upgrade for the Cisco 3745	2
FL-GK-NEW-3745	License for a new 3745-based gatekeeper for voice and video	2
MEM3745-256D-INCL	256 MB DIMM DRAM Memory default for the Cisco 3745	2

Table A-7 shows a sample BOM for BVSM provisioning.

Table A-7 BVSM Provisioning

Product	Description	Qty
VOSS-Server HW	VOSS-Server m2010-FT	5
BVSM software	Provisioning software (includes all Cisco drivers + DHCP)	1
Voice-mail driver	IP Unity driver	1
AC driver	Netwise driver	1

Table A-8 shows a sample BOM for the core LAN switch and firewall.

Table A-8 Core LAN Switch and Firewall

Product	Description	Qty
WS-X6548-GE-TX	Catalyst 6500 48-port fabric-enabled 10/100/1000 Module	2
WS-SVC-FWM-1-K9	Firewall blade for 6500 and 7600, VFW license separate	2
SC-SVC-FWM-2.2-K9	Firewall Module Software 2.2 for 6500, two free VFW	2
FR-SVC-FWM-VC-T3	Catalyst 6500 and 7600 virtual FW licensing for 100 VF	2

Table A-9 shows a sample BOM for various options.

Table A-9 Options

Product	Description	Qty
BAMS	Billing and Measurement Server	tbc
SLT	SS7 Signaling Gateway	tbc
NMS	Network Management	tbc
Voice mail	IP Unity	tbc
Attendant console	Netwise	tbc
Racks	Mobile or fixed	tbc
Ancillary equipment	KMV switch, monitors, keyboards, cabling	tbc
Phones	Cisco phones	tbc
Catalyst 3560	Edge Devices—Ethernet ports (line-powered)	tbc

GLOSSARY

A

A number Calling number.

API Application programming interface.

AXL AVVID XML layer.

B

B number Called number.

BVSM Business Voice Services Manager.

C

CC Country code.

CF Call forward.

CLI Command-line interface *and* calling line identification.

CLIP Calling Line Identification Presentation.

CLIR Calling line identification restriction.

CoS Class of service.

CPID Call processing identifier (unique system-wide).

CSS Calling search space.

CT Call type.

CTI Computer telephony integration.

D

DDI Direct Dial Inward.

DID Direct Inward Dialing.

DP Dial plan.

DPNSS Digital Private Network Signaling System.

E

E.164 ITU-T recommendation defining PSTN numbering plan.

EISUP Extended ISDN user part.

EOL End of line (variable used by BVSM to determine the end of line in each model).

EXT Extension *and* external prefix.

F

FINT Full Internal Number = CPID+RID+SLC+EXTN = Cisco Unified CM DN.

FNN Full national number—E.164 telephone number without area code.

G

GK Gatekeeper.

GUI Graphical user interface.

GW Gateway.

H

H.323 ITU-T umbrella recommendation defining audio-visual protocols on a packet network.

H/M-UCS Hosted/Managed-Unified Communications Solution.

HSI H.323 Signaling Interface.

Hosted UCS Short form of Hosted Unified Communications Services.

I

ICPID Call processing identifier, IPPBX-based.

IOS (Cisco) Internetwork Operating System.

IP Internet Protocol.

ISP Inter-site prefix.

ISUP ISDN user part.

L

LRID Routing identifier, location-based.

M

MGCP Media Gateway Control Protocol.

MML Man-machine language.

MT Multi-tenant.

MWI Message waiting indicator.

N

NOA Nature of address.

P

PBX Private branch exchange.

PCC Padded country code

PGW PSTN gateway.

POTS Plain old telephone service.

PRI Primary Rate Interface.

PSTN Public switched telephone network.

Q

QSIG Q Signaling (ISDN-based protocol for signaling between PBXs).

R

RID Routing Identifier (unique per CPID).

S

SIP Session Initiation Protocol.

SOAP Simple Object Access Protocol.

SLC Site location code (unique within a customer).

SRST Survivable Remote Site Telephony.

SS7 Signaling System 7.

T

TOD Time of day.

V

VM Voice mail.

X

XML Extensible Markup Language.

INDEX

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