



## CHAPTER 4

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

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

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 USM Bulk Loaders, page 4-1](#)
- [Performing the Initial Configuration, page 4-5](#)
- [Hosted UCS 7.1 Platform configuration, page 4-7](#)
- [Testing and Verifying Initial Configuration, page 4-9](#)

## Using USM Bulk Loaders

This section provides an overview of the USM bulk-data loaders provided with the Hosted UCS platform for getting started with provisioning of the platform.

This section contains the following topics:

- [Overview, page 4-1](#)
- [Dial Plan Model Loaders, page 4-4](#)
- [Configuration - data Loaders, page 4-4](#)

## Overview

Bulk loaders are specially formatted Excel spreadsheets that let you perform multiple configuration changes in the database of VOSS USM. They can be used to load bulk data into the USM database both faster and easier than manual configuration using Graphical User Interface (GUI) of USM. The bulk loaders are a key part of the platform 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. The bulk

loaders need not be used for all the bulk loading tasks. For most tasks, the data can be loaded using the GUI of the USM itself. These loader sheets are built using Microsoft Excel, and are loaded into USM by importing them directly.

## Format

The bulk loaders are in the form of Excel workbooks with several worksheets in each of them. The worksheets have the configuration data grouped according to the function, and worksheets can also be grouped according to the high-level function. Several workbooks are provided with the Hosted UCS platform.

The two sets of bulk loader workbooks provided with the Hosted UCS platform are as follows:

- Dial Plan models
- Bulk Configuration-data loaders.

## Dial Plan Models

The workbooks in this set are typically grouped as follows, but this grouping is not mandatory.

1. CCM-HUCS71a Model
2. CCM-Model-CUCM-ONLY
3. IOS-Device-HUCS71a Model
4. IOS-Device-Model-CUCM-ONLY
5. Netwise-HUCS71a Model
6. PGW-MML-HUCS71a Model
7. PGW-TimesTen-HUCS71a Model
8. Movius-HUCS71a Model

## Bulk configuration-data loaders

The workbooks in this set are typically grouped as follows, but this grouping is not mandatory.

1. BaseData.xls
2. ProviResel.xls
3. Network.xls
4. Customers.xls
5. Resources.xls
6. Buildings.xls
7. Divisions.xls
8. BuildingLocations.xls
9. Locations.xls
10. LocAdmin.xls

The Dial Plan models and the Configuration-Data loaders are to be loaded separately, and the Dial Plan models are to be loaded first. This is because the dial plan models comprise the intelligence that instructs USM about what it has to provision at the component-level while loading the configuration data.

All the sheets in either of the two sets i.e. Dial Plan models and Configuration - data loaders, could be combined to one single workbook also, but it is not advisable because in that case, if a single sheet fails to load, all the others after the failed sheet would also fail to load if they are dependent on the failed sheet's data. It is not required to have the sheets of a workbook in any specific order. Also it is recommended that you use the sample models provided in USM as a reference base for building your customized bulk loader sheets.

**Note**

Currently, bulk loaders can be used by all system administrators by default, but other administrators might not be able to perform all bulk-loading operations. For other administrators to be able to do some operations (add/edit/delete a type of data in USM) they should be associated to access profiles with relevant access rights configured for those operations. These access profiles can be accessed by navigating to **Setup Tools > Access Profiles** page of USM.

The key points about the USM bulk-data loaders to be noted before creating/using them are as follows:

- USM supports only Microsoft Excel spreadsheets with file extension .XLS (Office 2003 default), and not the XML based spreadsheets with .XLSX extension (Office 2007/2010 default).
- The name of the workbooks could be anything, and in case of a failure in loading a part of the workbook the user can always correct that part, comment out the other parts (by setting # to the first column of the rows) or sheets (by prefixing the sheet names with a #), and re-upload the workbook with the same name as before or a different name.
- The first row of every sheet is the header row, and it contains the column names. The sheet names and the column names should not be changed as these names are referenced by the USM during data loading. The sheet names used for the bulk loaders can be obtained from the sample loaders provided by VOSS in the USM, **Setup Tools > Bulk Load Samples**.
- To comment out any row so that USM does not process it while importing, insert an additional empty column to be the first column (Column A), and then insert # or ## in that column for the rows that are not to be loaded.
- Some headers in the sample loader sheets provided with VOSS are highlighted in Red indicating that they are mandatory fields, and those columns require row values for each row with valid data.
- Some fields require a value only from a valid list of values. To assist the user with this, and also to provide information on the default values, or any other helpful info, comments are added to the corresponding header cells which could be read by placing the mouse pointer over the cells.

**Figure 4-1** An example of the Configuration-data Bulk Loader sheets with some features marked

	A	B	C	D	E	F	G	H
1		Provider Name	Reseller Name	Name	Description	Theme Name	Defaults to "default"	Address 1
2	#	HUCS Telecom	Reseller_A	Customer A	Customer 1 for Reseller A			0 Barren Street
3		HUCS Telecom	Reseller_B	Customer B	Customer 1 for Reseller B			15 West Gate
4								

Annotations in the table:

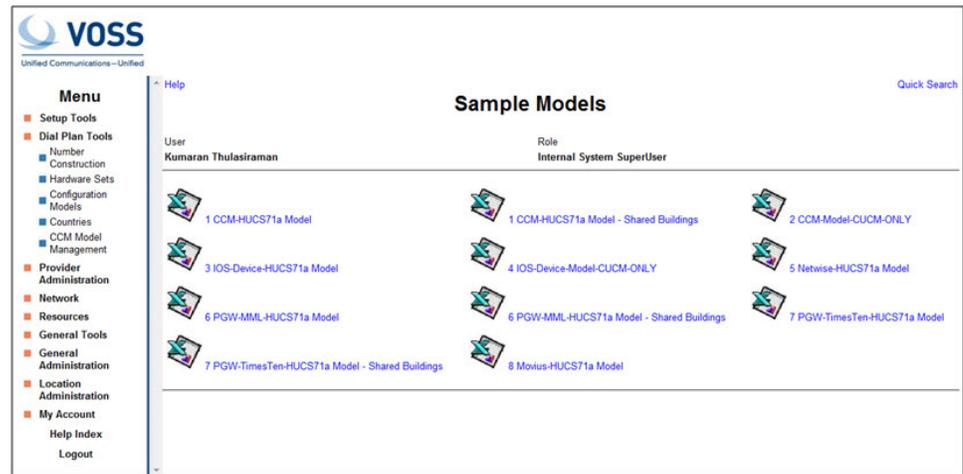
- Row 1, Column A: Row ignored with a #
- Column C: Mandatory column
- Column E: Not mandatory
- Column G: Defaults to "default"
- Column H: Address 1
- Row 2, Column A: Comment indicator
- Column G: Comment on the field

The sample Dial Plan models could be obtained from USM by navigating to the Dial Plan Tools and selecting the Configuration Models tab. The sample Configuration-data bulk loader sheets could be obtained from the Setup Tools > Bulk Load Samples page.

## 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, and select the Sample Models link (see [Figure 4-2](#))

**Figure 4-2** *Dial Plan Tools-Configuration Models Option-Sample Models*



### 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.

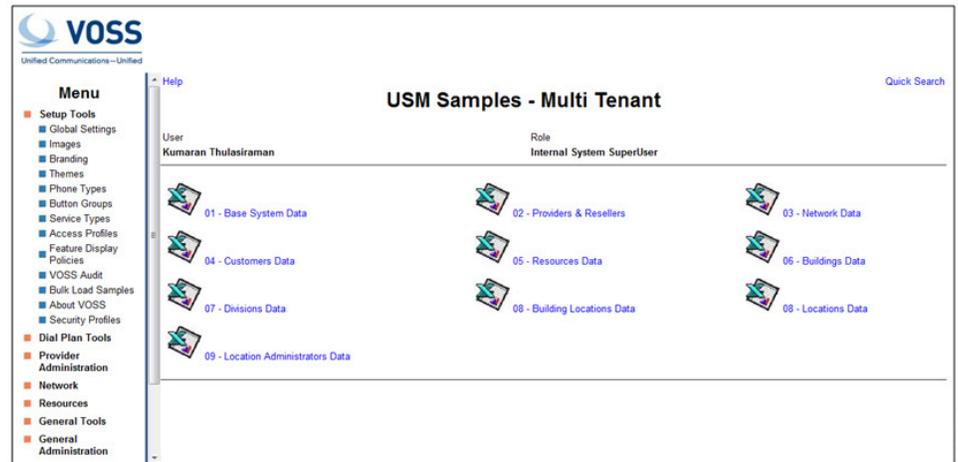
These models have the intelligence that drives the provisioning of the Hosted UCS platform by USM. If loading a particular model loader workbook failed, you can correct the model with the required fix, and re-upload it again even without commenting out the sheets that went through successfully last time. This is because the relevant configurations that are provided by the workbook are always cleared from the system before each model workbook is loaded. The first sheet of the model workbook contains the information on which configurations are cleared, before it starts loading from the second sheet onwards.

## Configuration - data Loaders

The configuration loaders contain the network configuration data as well as the configuration data for providers and customers. The Network Configuration data defines the Hosted UCS network components, individual component configuration, and the various platform-wide associations, sets, and groups. Configuration data for Providers and Customers include the associations of the network components to individual customers, Provider and Customer details, and the platform deployment configuration that goes all the way from defining locations under a customer to the configuration for individual phones in those locations.

To display the sample configuration data loaders, click the Bulk Load Samples option under the Setup Tools menu. (see [Figure 4-3](#)).

Figure 4-3 Setup Tools-Bulk Load Samples



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 USM GUI options to explore the effects on the system configuration.

**Note**

The sample bulk data is provided only as a general reference. It is recommended that you contact VisionOSS or Cisco Advanced Services for the most current sample bulk data as your starting point.

## Performing the Initial Configuration

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

- [Overview, page 4-5](#)
- [Loading the Dial Plan Model Workbooks, page 4-6](#)
- [Loading the Configuration - data Loader Workbooks, page 4-6](#)

### 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 USM loaders have been created for the target Hosted UCS platform. These should be pre-tested in simulation (manual) mode.

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

1. Dial Plan Models
2. Bulk Configuration-data loaders

The order of loading the individual workbooks under each of the above two groups is the same order in which the workbooks are listed in the section **Format** under **Using USM Bulk Loaders**.

The specific pages in USM to be used for bulk loading are,

- Bulk Configuration-data Loading: General Tools > Bulk Load Tools
- Dial Plan Model Loading: Dial Plan Tools > Configuration Models > Model Loader

## Loading the Dial Plan Model Workbooks

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

### Procedure

- 
- Step 1** Choose Dial Plan Tools > Configuration Models > Model Loader.
- Step 2** Select **Schedule New Job**.
- Step 3** Click **Browse** and select the Spreadsheet that you would like to upload.
- Step 4** Specify whether there is a specific date and time when you would like the spreadsheet to be uploaded in the field **yyyy-mm-dd** and **hh:mm:ss**. If you would like the upload to occur as soon as possible, check the **Execute as soon as possible** check-box.



**Note** You can schedule multiple sheets one after another and they will queue up and be processed in the order scheduled.

- Step 5** Select the relevant file encoding type from the drop-down list then click **Submit** to schedule the upload



**Note** Select File Encoding - This option is used to set the file encoding. The default is set to UTF8 and will be able to load any sheet containing normal characters. If you are using special characters (àüý\*Úěá ...) in your sheets, UTF8 will display these characters as □□□□□□□□. To load them properly, please select the correct file encoding.

## Loading the Configuration - data Loader Workbooks

To load the Configuration-data workbooks in the USM, follow the following steps.

### Procedure

- 
- Step 1** Choose **General Tools > Bulk Load**.
- Select **Schedule New Job**.
- Click **Browse** and select the Spreadsheet that you would like to upload.
- Specify whether there is a specific date and time when you would like the spreadsheet to be uploaded in the field **yyyy-mm-dd** and **hh:mm:ss**. If you would like the upload to occur as soon as possible, check the **Execute as soon as possible** check-box.
- Select the relevant file encoding type from the drop-down list and click **Submit** to schedule the upload. The status and history of all the loading is displayed. The status of a loader can be any of the following:
- Scheduled: This status indicates that the scheduled time of the load has not occurred yet. The load will be started at the time scheduled.

- Validating: The load process is validating the data in the workbook. This occurs before any loading occurs. The current sheet being validated can be seen on the details page for that load. The whole workbook will be validated and if there are any errors the load will not progress to the next phase. The details of the validation failures can be seen in the log.
- Loading: This status indicates the process has passed validation and is starting transactions. The current sheet and row being worked on can be seen on the details page for the load. To check whether the transactions has started, click **Show Transactions**.
- Completed: This status indicates the load process has completed processing the data in the sheets. The errors count indicates the number of transactions that are not completed successfully. The details of the transactions can be seen in the transaction log or by clicking Show Transactions.
- Failed: Generally indicates the internal issues in the load process. The log file for the load can be seen for more details.

The job number or the filename both provide a link to see the details of the load. This provides more detailed information about links to the log files and the transactions scheduled by the load.

## Hosted UCS 7.1 Platform configuration

For the Hosted UCS 7.1 platform, the following steps are recommended to be followed in loading the bulk loaders

### Procedure

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**Step 1** Load **1-BaseData.xls** workbook using the procedure explained in the previous section.

**Step 2** Load **2-ProviResel.xls** workbook.




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**Note** Changes done to the Base Data configuration will not reflect in the configuration for the already existing providers. So, verify the Base Data configuration in the 1-BaseData.xls workbook to be correct before loading the 2-ProviResel.xls workbook.

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**Step 3** The functions Add CUCM Groups, Add CUCM Media Resource Groups and Add CUCM MRG Lists cannot be implemented using bulk loaders due to the limitation described in <>. Therefore, remove the sheets with these names from the **3-Network.xls** workbook, and save them separately. Also, remove the **Import CCM Items** sheet. Load the 3-Network.xls workbook after removing the sheets. Check for errors before proceeding to the next step.

**Step 4** Do the following steps manually after loading the 3-Network.xls workbook for all CUCM clusters in the platform.

- a. Navigate to **Network > PBX Devices**.
- b. Select **cluster** by clicking the cluster name.
- c. Inside the cluster configuration page, click Groups to add the CUCM groups.
- d. Click **Add**.
- e. In the form that appears after clicking Add, enter the relevant data exactly as it is in the removed sheet 'Add CUCM Groups'. Click **Submit**.
- f. For the media resource groups configuration and the MRG lists configuration, click **Media Resources** and **add** the data in the corresponding sheets.

- Step 5** Navigate to **Network > PBX Devices**, select the CUCM cluster and click **Load Static Config** in the bottom of the page. Check for errors before proceeding. Do this for all the CUCM clusters available in the network.
- Step 6** Navigate to **Network > Transit Switches**, select the PGW and click **Load** in the bottom of the page. Check for errors before proceeding. Do this for all the transit switches/PGW available in the network.
- Step 7** Update media resource group list in trunk config for all the IPPBX as per following steps.
- Go to **Network > PBX Devices**.
  - Select the PBX.
  - Click **Trunk Config**.
  - Select **External Trunk**.
  - Select the correct **Media resource Group List** from the drop-down menu. Verify that DHCP helper addresses are loaded on the edge devices.
- Step 8** Load the **Import CCM Items** sheet as a separate workbook now.
- Step 9** After adding the Provider Countries, it is required to manually edit the incoming PGW trunk. Follow these steps to do it. . If you are adding any other country besides GBR, do the following static configuration on PGW before loading the Provider Countries sheet.
- For adding e.g. US, prov-add:rtlist:name="rtlist2pstn1",rtname="route2pstn",distrib="OFF"
- SSH to the PGW.
  - Type mml
  - Start Provisioning (e.g. mml command **prov-sta::srcver="active",dstver="P044dp",confirm**)
  - Edit trunk group properties (e.g. **prov-ed:trnkgrrpprop:name=<incoming PGW trunk name>,custgrpid="P044"**)
  - Issue **Prov-dply** or **Prov-cpy** depending on whether the PGW has a standby server or not.
- Step 10** Add CUCM sets by following the steps mentioned below.
- Navigate to **Network > PBX Devices**.
  - Select **Associated Devices** for a CUCM cluster, and click **Add**.
  - Enter a name and provide a description to the set.
  - Select the **Transaction Type** as **Add Customer**.
  - From the available devices shown, select all the CUCM clusters that will be used by any customer using the selected cluster. This step is mandatory, and should be done before adding the customers to the USM database.

**Note**


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Understanding of the CUCM Sets is required before making this configuration.

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Load the following workbooks in the same order as they are listed below.

- 4-Customers.xls
- 5-Resources.xls
- 6-Buildings.xls
- 7-Divisions.xls
- 8-BuildingLocations.xls
- 8-Locations.xls

7. 9-LocAdmin.xls

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**Note**

At this point of time, the Hosted UCS platform should have been provisioned completely with all the phones registered. Make sure that the transactions in USM are completed successfully with no errors.

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## Testing and Verifying Initial Configuration

This section describes the various methods to test the configuration added to the USM database using Bulk Loaders, and provisioned on the platform. This section includes the following topics:

- [Testing the Platform in the Data Center, page 4-9](#)
- [Testing the Platform in the Network, page 4-9](#)
- [Verifying Bulk Loading, page 4-10](#)
- [Verifying Cisco Unified Communications Manager Publisher from the System Menu, page 4-10](#)
- [Verifying Cisco Unified Communications Manager Publisher from the Services Menu, page 4-11](#)
- [Verifying Cisco Unified Communications Manager Publisher From the Devices Menu, page 4-11](#)
- [Verifying Cisco PGW After Loading Bulk Data, page 4-12](#)

### 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 correctly 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 Communications Manager.
  - 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**

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- 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 the successful loading of the Bulk configuration data in the USM using Bulk Loaders:

- Verify that USM indicates successful loading with no failure messages.
  - Load failure is normally due to incorrect static configuration settings.
- Look for: Request Succeeded—InitIPPBX and InitTransit.



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

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## 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, USM configures *all* the cluster servers as Cisco Unified CM (subscribers), and it is necessary to delete out Publisher, TFTP, and MOH servers.

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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.

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## 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 USM 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 USM-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.
-