Cisco Unified Communications Domain Manager, Release 11.5(3) Bulk Provisioning Guide

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C O N T E N T S

Cisco Unified CDM Bulk Provisioning Guide Change History

Change History

Section	Description	Date
Obtaining BulkLoading Template Reference Set, on page 32	Updated the references for Unified CDM 10.x/11.5(x) bulk loader reference templates	September, 2017
Bulk Load Sheet Layout, on page 25	Updated with meta_prefix, parallel_transaction_limit resource in bulk load sheets	September, 2017
Bulk Load Sheet Layout, on page 25	Parallel Transaction Limit updated	February, 2017
Bulk Load Sheet Layout, on page 25	Updated the topic with the new layout information.	April, 2018

Bulk Provisioning Overview

Overview

For Cisco Hosted Collaboration Solution (HCS), you can use any of the following tools to bulk provision Cisco Unified Communications Domain Manager 10.x/11.5(x):

- Cisco HCS Intelligent Loader.
- Cisco Unified Communications Domain Manager 10.x/11.5(x) **Administration Tools > Bulk Load** menu.
- Cisco Unified Communications Domain Manager 10.x/11.5(x) REST API.

The HCS Intelligent Loader (HIL) reads required information from the Cisco Unified Communications Domain Manager 10.x/11.5(x) API. The HIL is a service that runs on the Cisco Hosted Communication Mediation Fulfillment node. It takes spreadsheets and mapping templates as input and uses the API to communicate with Cisco Unified Communications Domain Manager 10.x/11.5(x) to provision elements in the spreadsheet.

The information that is provided when the Cisco Unified Communications Domain Manager 10.x/11.5(x) APIs read the Schema definitions is used by the following features:

- Auto Mapper: If the contents match, auto-mapper automatically maps the input source fields to target fields. However, if the target fields change, the source fields are automatically mapped.
- Smart search: Added to the source and target fields to enable quick search of the field names to be used for mapping.
- Validation: The HIL tool can prevalidate information before sending it to the Cisco Unified Communications Domain Manager 10.x/11.5(x), providing an online editing capability to correct errors found by validation. Validate and Load operations are disabled or enabled based on the permissions in Cisco Unified Communications Domain Manager 10.x/11.5(x). Validator allows validation on Add, Edit and the Delete functionality.

- Intelligent Loading: After source files are validated they can be submitted to the Cisco Unified Communications Domain Manager 10.x/11.5(x) for processing. When load starts to Cisco Unified Communications Domain Manager 10.x/11.5(x) file status changes to 'Load in Progress' and a status icon is displayed.

- Progress Bar: The progress bar is only available for the ADD operation. Click the icon to open the progress indication. The progress status bar shows the percentage of the file that has been loaded and displays how many records have loaded or failed to load.

- Import from Cisco Unified Communications Domain Manager 10.x/11.5(x): HIL can download information from Cisco Unified Communications Domain Manager for any schema that HIL supports.

- File management: Allows you to upload files to the HIL system. You can download the Mapper, or use the File Management option to downloaded data from Cisco Unified Communications Domain Manager 10.x/11.5(x) and save it to a file on the administrator's desktop. Files can be downloaded and uploaded in Excel format for easy editing.

The Cisco Unified Communications Domain Manager 10.x/11.5(x) **Administration Tools > Bulk Load** menu option is available to bulk load information into Cisco Unified Communications Domain Manager 10.x/11.5(x).

The Cisco Unified Communications Domain Manager 10.x/11.5(x) REST API can be used to feed bulk information one record at a time. This is an effective means to bulk load information from an integrated OSS/BSS system.

For more information about the Cisco Unified Communications Domain Manager 10.x/11.5(x) API, refer to the *Cisco Unified Communications Domain Manager, Release 11.5(1) API Reference Guide*.

Bulk Loading Tools

HCS Intelligent Loader (HIL)

This Cisco Hosted Collaboration Mediation Fulfillment multi-user tool adds flexibility of input formats, data validation, and tied to Cisco Unified Communications Domain Manager 10.x/11.5(x) administration and system hierarchy. The tool evolves to include online data collection to eliminate the need for Microsoft Excel based solutions to simplify Cisco HCS operations. Features include:

- Conforms to Cisco Unified Communications Domain Manager 10.x/11.5(x) Role Based Access (RBAC) for Administrator login, Display Policies, Default Values, and GUI schema

- Ability to import, modify, and update Cisco Unified Communications Domain Manager 10.x/11.5(x) data

- Flexible source file mapping

- Full range of MACD operations

- Prevalidation of provisioning data

- Loads one record at a time

- Accepts Excel formulas in cells, which the tool evaluates before validation and loading to Cisco Unified Communications Domain Manager 10.x/11.5(x)

Cisco Unified Communications Domain Manager 10.x/11.5(x) Administration Tools Menu

In the **Administration Tools** > **Bulk Load** menu item, available in the Cisco Unified Communications Domain Manager 10.x/11.5(x) GUI for various hierarchies, the administrator can upload Excel files (Bulk Load Templates) and apply them to the system for bulk provisioning. Service Providers who choose to maintain their existing operations structure can do so using the Cisco Unified Communications Domain Manager 10.x/11.5(x) Administration Tool Bulk Loader.

Note Cisco Unified Communications Domain Manager 10.x/11.5(x) bulk loaders are not equivalent to 8.x bulk loaders. The 10.x system uses different fields and workflows to accomplish provisioning.

Bulk Load Templates

A Bulk Load Template is a single Excel file containing a single spreadsheet. Exported Bulk Load templates contain a single or multiple Provisioning/Data/Relation models like Sites, Devices or Customers. These are a part of the product and can be generated on demand for the corresponding models within the GUI.

Note Field data is not exported when exporting the bulk loader for a template, and only the field headings (schema) are imported.

Note For multi-sheet loading, use the Multi-Model Mapper function in the HIL Tool.

Bulk Loader Template Reference Set

A Bulk Loader Template Reference Set is a collection of multiple Bulk Load Template sheets for different models in a single Excel spreadsheet. The Bulk Loader Template Reference Set configures a basic system configuration, including NDL, Customer, Site, and dial plan elements. They provide typical loader templates, but service providers may add or delete templates as necessary based on their needs. The Bulk Loader Template Reference Set provides examples of how to populate the various templates.

There are two Bulk Loader Template References Sets, one is for the Native Bulk loader and another for the HIL tool. The Bulk Loader Template Reference Set applies to both the Cisco Unified Communications Domain Manager 10.x/11.5(x) Bulk Loader and the HIL tool, but the formatting of the spreadsheets is not the same.

When to Use Each Tool

For Cisco HCS 10.x, the preferred method to bulk load provisioning information into the system is to use the HCS Intelligent Loader (HIL). The HIL can support bulk and validation before loading operations from the following Cisco Unified Communications Domain Manager 10.x/11.5(x) GUI locations:

- Customer Management

- Site Management

- Device Management

- LDAP Management

- User Management

- Dial Plan Management

- Subscriber Management

- Services

- Entitlement

Using a flexible source-file-mapping feature and mapping templates, HIL allows bulk loading of source data from diverse sources. it supports Excel functions as data and supports multiple sheets in a single Excel file. With the help of the HIL **Import from CUCDM** option, you can import data from Cisco Unified Communications Domain Manager 10.x/11.5(x) and use it for bulk update or bulk delete operations or edit data to meet your needs and load to Cisco Unified Communications Domain Manager 10.x/11.5(x). Native bulk loaders can perform load operations in parallel unlike HIL, which loads one, record at a time.

This set of operations covers all the Cisco Unified Communications Domain Manager 10.x/11.5(x) operations that typically require bulk operations. For other operations that are not included in HIL, use the Cisco Unified Communications Domain Manager 10.x/11.5(x) **Administration Tools > Bulk Load** menu.

HCS Intelligent Loader

HCS Intelligent Loader Introduction

The HCS Intelligent Loader (HIL) is used to perform bulk operations like bulk add, delete, and update on Cisco Unified Communications Domain Manager. Using the HIL, you can map the user data information to the Cisco Unified Communications Domain Manager information. When the data is loaded, HIL mapping is used to translate data between the source (user data) and destination (Cisco Unified Communications Domain Manager) formats. HIL validates the user data and corrects errors, if any.

Note HIL relies on Cisco Unified Communications Domain Manager for user authentication. If a user is configured on Cisco Unified Communication Domain Manager, the same credentials are required to access HIL. In Cisco Unified Communications Domain Manager, users can only use Single Sign-On to access the GUI.

Note To use HIL, the Cisco Unified Communications Domain Manager version you are using must support it.

Table 1: Common HIL Terminology

Term	Definition
Model	The models are derived from Cisco Unified Communications Domain Manager and conform to the customized display policies for the hierarchy.
Mapper	The mapper file is the bridge between the HCS Intelligent Loader column and the Cisco Unified Communications Domain Manager GUI field.
Loader	The loader file contains the data.

Term	Definition
Hierarchy	The HCS Intelligent Loader uses the same hierarchy as Cisco Unified Communications Domain Manager. For more information, see *Cisco Unified Communications Domain Manager, Release 11.5(1) Planning and Install Guide* or Control Row, on page 6.

Loader File Introduction

Control Column

The first column of the loader is the **Control Column**.

The control column can use the following values at the start of the column:

- # - Comments out a row. You can have a dedicated control column, ideally the first column. When the row's first column has # or starts with #, HIL will consider it as commented row and does not validate nor load the row.

- *<#> - Multiple rows are grouped together using * followed by an integer . The number next to * indicates the no of rows starting the current row, that needs to be grouped together. . This means the next rows (the number specified after *, minus one) will not be used for validation, but only for loading. The rows will be grouped together with the master row, and loaded as one transaction. For example:

  - *2 = group the current row with the next row.

  - *3 = group the current row with the next two rows.

  - *1 = only the current row.

Control Row

The control row can be any row after the column headers or titles. At each control row, HIL sets the hierarchy to the hierarchy designated in the control row. The data in the following rows is loaded to the hierarchy specified.

You can use the control row to load data to multiple hierarchies, for example **$hierarchy:sys.hcs.provider.customer**.

Primary Key Identification

Primary Key Identification is an unique key for each record. The key is automatically generated, when records are successfully loaded in Cisco Unified Communications Domain Manager.

Macro Support

The HCS Intelligent Loader supports macros in any column, except the columns headers or titles in the loader sheet.

- If you prefix the data with "?", the Cisco Unified Communications Domain Manager macro value is evaluated and replaced with the result of evaluation, and then the replaced value gets loaded into the loader.

- If you don't prefix the data with "?", then the Cisco Unified Communications Domain Manager existing macro value is loaded into the loader.

Set Up HCS Intelligent Loader

Set up the HCS Intelligent Loader platform through an HCM-F service.

Before You Begin

- Ensure Cisco Hosted Collaboration Mediation Fulfillment is installed.

- Ensure that the DNS and domain are set correctly on the HCMF node (APP/WS) where HIL is running, as HIL should be able to resolve the hostname of the CUCDM.

Procedure

Step 1 Log in to the HCM-F CLI as admin.
HIL can be run on the WS node or the APP node.

Step 2 To activate the service, enter the command **utils service activate Cisco HCS Intelligent Loader Service**.

Step 3 To configure the HIL to communicate with the CUCDM server, enter the command **set hcs hil target config**.

Step 4 When prompted, enter the following details:

Option	Description
target type	**CUCDM**
Target Server Hostname	**<cucdm-hostname>** In case of Multi-Node deployment use the proxy node details, for example the same details you use to access the CUCDM user interface.
IP Address	**<cucdm ip address>** The IP address is selected by default based on the DNS settings, or you can also reenter the IP address.
Would you like to update the node information [yes/no]?	**Yes**

The "Target successfully updated in the Properties File" message is displayed.

Step 5 Verify that the target setup is complete by entering the **show hcs hil target config** command.
The HIL Target Node Configuration Details are displayed.

Step 6 (Optional) Set the HTTP timeout parameter by entering the **set hcs hil target timeout** command. The system then prompt you for a value between 90 seconds and 30 minutes.

HIL performs synchronous transactions while waiting for one transaction to be completed before starting another. If the wait is beyond the timeout value that is configured, a timeout occurs and HIL marks that row/record as appropriate in the "trans_status" column for that row.

Step 7 Navigate to the following URL: https://<hostname>/HIL.
Use your Cisco Unified Communications Domain Manager credentials to log in.

HCS Intelligent Loader Common Tasks

This section describes common tasks used in HIL.

HCS Intelligent Loader Provisioning Workflow

The following workflow outlines the tasks for bulk-adding operations.

Before You Begin

Create at least one customer and site in the Cisco Unified Communications Domain Manager before you start using the HIL to create mappers.

Procedure

Step 1 Navigate to https://<host name>/HIL and sign in to HIL using your Cisco Unified Communications Domain Manager email id as your username.

Step 2 Select the model from the menu on the left.

Step 3 Select the required hierarchy at the top of the page.

Step 4 Create mapper, see Create Model Mapper, on page 10 or Create Multi Model Mapper, on page 12.

Step 5 Add field values to source file by choosing one of these options:

Option	Description
HIL Edit	You can use the HIL interface to view or edit the source file. **Note** Do not change the Primary Key Identification column, to avoid corrupting the data.
Spreadsheet Edit	You can edit the source file directly by following these steps: **1** **Download to desktop** the source file. **2** Add or Edit the values into the source file spreadsheet. **3** **Upload from desktop** the source file back into HIL. **Note** To edit a particular field, search for the field by using control rows. For more information, see Edit or Delete Using search_field, on page 9

For more information, see Loader Tab Reference, on page 19.

Step 6   Validate the source file, see Validate a File, on page 12. You must validate files before adding, editing, or deleting data in Cisco Unified Communications Domain Manager.

Step 7   Submit the source file to Cisco Unified Communications Domain Manager, see Submit to CUCDM, on page 13.

HCS Intelligent Loader Updating Workflow

The following workflow outlines the normal tasks with bulk updating.

Procedure

Step 1   Navigate to the following URL https://<host name>/HIL and login with your CUCDM credentials

Step 2   Select the model from the menu on the left.

Step 3   Select the required hierarchy at the top of the page.

Step 4   Select the **Loader** tab.

Step 5   Select the file in the table.

Step 6   Edit field values to source file.

Option	Description
HIL Edit	You can use the HIL interface to View/Edit the source file.
Spreadsheet Edit	You can edit the source file directly by: 1 **Download to desktop** the source file. 2 Adding/Editing the values into the source file spreadsheet. 3 **Upload from desktop** the source file back into HIL.

For more information, refer to Loader Tab Reference, on page 19.

Step 7   Validate the source file, refer to Validate a File, on page 12. You must perform validation before adding, editing, or deleting data in Cisco Unified Communications Domain Manager.

Step 8   Submit to CUCDM, refer to Submit to CUCDM, on page 13.

Edit or Delete Using search_field

The following table outlines how to specify a search_field in the Control Row.

Options	Description
$search_field: field_name	Field_name is the name of the field in the Cisco Unified Communications Domain Manager. **Note** HIL sequentially searches the existing source file, defined in the search_field. If HIL finds multiple results for a search, then HIL marks it as a Record Not Found for that row.
$search_field: userid	HIL searches for the user ids and it compares with the user ids available in Cisco Unified Communications Domain Manager. When the user ids match, HIL retrieves the corresponding Primary Key Identifications and then you can edit or delete the matching record.
$search_field: userid&lastname	You can search for multiple field values using "**&**" between the field values.
$hierarchy:sys.hcs.p1.c1; search_field: userid	You can specify a search_field in the same Control Row along with other Control Row properties, using a semicolon (;) between the two properties.
$hierarchy:sys.hcs.p1.c1 $search_field: userid	You can specify a hierarchy and search_field in separate Control Rows, that is, each property can reside in its own Control Row. The hierarchy can be specified in one row and the search_field can be specified in another row. **Note** HIL allows you to use the latest search field, in case there are two different search_fields used in the Control Row.
Order_by	When Primary Key Identification and the search_field are not available (or the field specified in the search_field is not valid), then HIL uses the order_by field. Order_by field is used by Cisco Unified Communications Domain Manager to get the list of the source files. **Note** In the case of a relation or subscriber, the default order_by field is userid.

Create Model Mapper

Procedure

Step 1 Select the model from the menu on the left.

Step 2 Select the required hierarchy at the top of the page.

Step 3 Select the **Mapper** tab.

Step 4 Click **Create**.

The **Create Mapper: <Model Name>** window opens

Step 5 Enter a **Name** and **Description** for the mapper.

Step 6 Select a **Source File**, either by selecting **Choose from uploaded files** or **Upload new file from desktop**. You create the source file on the Loader tab, by performing an **Import from CUCDM** or **Upload from Desktop** prior to creating the map.

The mandatory fields for the model selected load automatically. To load all fields click **Map All** or **Add Row**. If you add a row, you will need to select the Target Field and Default value.

Important
- **Source Fields**: Populated by the first line of the import file / loader (can be any string).

- **Target Fields**: The actual field as it appears in Cisco Unfiled Communications Domain Manager.

- **Default Values**: This value will be used to populate the field in Cisco Unfiled Communications Domain Manager, if it is empty. If you want to override the value, select the checkbox.

Step 7 Click **Save Changes** to save the changes or click **Close** to close without saving the changes.

Example:

When you create a mapper for subscriber model, by default, the mapper displays minimum mandatory fields that are required for adding a subscriber. If user adds any fields related to phone, the mapper will automatically populate, a set of dependent fields (phone) that are required to successfully add phone along with subscriber.

- The mandatory fields that are populated automatically for mapping are not driven by the HIL's field values but by the field values of the Cisco Unified Communications Domain Manager. That is you may notice same source and target fields maps automatically. If there are any changes in the source field then you must select the field values from the drop-down list.

Example:

In Cisco Unified Communications Domain Manager Quick Add Subscriber, when you check the checkbox for voice, additional fields such as phone type and phones are displayed. In HIL, if you want to add voice, the fields voice, phone type, and phones must mapped manually. When you add a row for specific models, all the dependent fields appears in target field. While mapping them with the source field, you must select the fields values from the drop-down list.

- For specific models, HIL mapper displays more fields than Cisco Unified Communications Domain Manager, because HIL does not hide the fields, while Cisco Unified Communications Domain Manager hides the fields with some default values. The hidden values from Cisco Unified Communications Domain Manager shows in HIL as default values.

Create Multi Model Mapper

Procedure

Step 1 Select **HIL Menus** > **Multi Model Mapper**.

Step 2 Select the required hierarchy at the top of the page.

Step 3 Click **Create**.
The **Create Mapper: Multi Model Mapper** window opens

Step 4 Enter a **Name** and **Description** for the mapper.

Step 5 Select a **Source File**, either by selecting **Choose from uploaded files** or **Upload new file from desktop**.

Step 6 Select a **Source Sheet**.

Step 7 Select a **Model**.

Step 8 Click **Load**.
The mandatory fields for the model selected load automatically. To load all fields click **Map All** or **Add Row**.
If you add a row, you will need to select the Target Field and Default value.

Important • **Source Fields**: Populated by the first line of the import file / loader (can be any string).

• **Target Fields**: The actual field as it appears in Cisco Unfiled Communications Domain Manager.

• **Default Values**: This value will be used to populate the field in Cisco Unfiled Communications Domain Manager, if it is empty. If you want to override the value, select the checkbox.

Step 9 Click **Save & Close**, to close the window, or **Save & Continue**, to load another mapper.

Validate a File

You must validate the source file before adding, editing, or deleting data in Cisco Unified Communications Domain Manager. Validation varies based on the operation:

• When you add data into Cisco Unified Communications Domain Manager, HIL will validate all data in the selected source data sheet.

• When you edit data in Cisco Unified Communications Domain Manager, HIL will validate the selected fields from the spreadsheets.

• when you delete data from Cisco Unified Communications Domain Manager, HIL will validate only the selected fields from the spreadsheets.

Note Add, edit, and delete operations are disabled or enabled based on the permissions in Cisco Unified Communications Domain Manager.

Procedure

Step 1 Select the model from the menu on the left.

Step 2 Select the required hierarchy at the top of the page.

Step 3 Select the **Loader** tab.

Step 4 Select the file name you want to validate.

Step 5 Click **Validate**, and then select the type of validation.

Step 6 The validate window will open. Click **Validate**.

Step 7 Click **OK** on the validation status window.

Step 8 Check the **File Status** for validation status message.

- VALIDATION IN PROGRESS: When validation of file is in progress (full or partial validation)

  Note **Full Validation:** When all the fields of Excel spreadsheet are validated.

  Partial Validation: When some of the fields of Excel spreadsheet are validated.

- VALIDATION ERRORS: When validation is complete and have errors (full or partial validation)

- VALIDATION FAILED: When validation fails to kick off or exceptions (full or partial validation)

- VALIDATION COMPLETED: When validation is complete successfully (full or partial validation)

- VALIDATION PROLONGS: When validation status does not change withing 5 seconds. Click on Refresh Table icon to update the validation status

Submit to CUCDM

You can load the Excel spreadsheet into Cisco Unified Communications Domain Manager. You can perform add, edit, or delete functionality while submitting a file in Cisco Unified Communications Domain Manager.

Before You Begin

Files must be validated with the status "VALIDATION COMPLETED"

Procedure

Step 1 Select the **Loader** tab.

Step 2 Select the file you want to submit.

Step 3 Click **Submit to CUCDM**, and select one of the following:

Option	Description
Add	To add field values in CUCDM.

Option	Description
Edit	To edit field values in CUCDM. **Note** While updating the subscriber you can add new services to the subscriber (such as EM, RDP, WebEx, VM etc..), when HIL detects a new service is being added to the subscriber, the new service is added through a separate child transaction and though this transaction fails, HIL does not capture the result of this transaction and only accounts the status of the parent transaction. For example; while updating a subscriber, if you add VM to the subscriber, along with modifying the subscriber itself, then adding VM will be a separate child transaction, and even if adding VM fails, and the update of Subscriber succeeds the "trans_status" in the loader file is shows as Success.
Delete	To delete field values in CUCDM.

To delete a model, delete associated models in the reverse order of the Add operation.

Example:
To delete the associated SIP trunk, follow the order as mentioned:

1 Disassociate the analog gateway from the site.

2 Delete the analog gateway.

3 Delete the SIP trunk.

Note   Delete is disabled for Site Management and Customer Management, because they have Delete Site and Delete Customer options.

Step 4   Select the sheets you want to submit.

Step 5   Click **Load**.
After the loading begins, an icon is displayed at the extreme right of the File Status message. You can click this icon to see the progress status of the file. When the file is loaded, a success message is displayed

Graphical User Interface Reference

This section describes the HCS Intelligent Loader.

Cisco Unified Communications Domain Manager and HCS Intelligent Loader Models

The HCS Intelligent Loader home page displays the various Cisco Unified Communications Domain Manager and HIL models. The models that are displayed are based on the user permissions and display policies that are associated with the administrator's account on the Cisco Unified Communications Domain Manager.

The following table contains a sample model list:

Cisco Unified Communications Domain Manager Models	
Customer Management	Customers
	Delete Customer
	Network Device Lists
Site Management	Sites
	Defaults
	Delete Sites
Device Management	CUCM	Servers
	CUCM	SIP Trunks
	CUCM	Route Groups
	CUCM	Route Lists
	CUCM	Device Pools
	CUCM	Regions
	CUCM	Route Patterns
	CUCM	Translation Patterns
	CUC	Servers
	CUP	Servers
	WebEx	Servers
	Prime Collab	Servers
	IOS	IOS Devices
	IOS	Analog Gateways
	IOS	SIP Local Gateways
	IOS	Command Builder

LDAP Management	LDAP Server
	LDAP User Sync
	LDAP Schedule
Entitlement	Device Types
	Device Groups
	Catalogs
	Profiles
User Management	Users
	Provisioning Status
	Sync & Purge | LDAP Users
	Sync & Purge | CUCM Users, Lines, Phones
	Manage Filters | Define Filters
	Manage Filters | Filter Order
	Self Provisioning | User Profile
	Self Provisioning | Line Mask
	Self Provisioning | Universal Device Template
	Self Provisioning | Universal Line Template
	Move Users
	Manage Users
	Local Admins

Dial Plan Management	Customer | Dial Plan
	Customer | Add Directory Number Inventory
	Customer | Add E164 Inventory
	Site | Dial Plan
	Site | Class of Service
	Site | Short Code
	Site | Directory Number Routing
	Site | Sip Route Pattern
	Advanced Configuration | Dial Plan Schema
	Advanced Configuration | Dial Plan Schema Group
	Advanced Configuration | Associate Custom Dial Plan Schema Group

Subscriber Management	Lines
	Agent Lines
	Directory Number Inventory
	E164 Inventory
	E164 Associations (N to DN)
	E164 Associations (N to 1 DN)
	Phones
	Subscriber
	Quick Add Subscriber
	Quick Add Subscriber Groups
	Voicemail
	WebEx
	PLAR (Hotdial)
	Hunt Groups
	Call Pickup Groups
Services	Voice Mail	Voice Mail Service
	Voice Mail	Associate Voice Mail Service to Customer
	Voice Mail	Pilot Numbers
	Voice Mail	Associate Pilot Number to Site
	Contact Center	Servers
	Contact Center	Service
HIL Models	
HIL Menus	Multi Model Mapper

Loader Tab Reference

The following table outlines the functions available on the loader tab.

Item	Description
Select Template	Drop down to select the available mapper templates.
Preview	Displays a preview of the selected mapper template.
Upload from desktop	Allows the user to upload a file from their computer.
Download to desktop	Allows the user to download a file to their desktop. Users can then edit the spreadsheet and then upload.
Delete	Deletes the file from HIL.
Rename	Renames the file.
Import from CUCDM	Allows the user to select to import the content from CUCDM. The model schema will determine what information is available in the spreadsheet.
Copy	Copies the file
View/Edit	Allows the user to view and edit the file in HIL.
Submit to CUCDM	Allows the user to select to export the loader file into CUCDM. Users can select Add, Edit, Delete.
Validate	Allows the user to validate the content in the file before, and must be completed before submitting to CUCDM. **Note** Add, edit, delete operations are enabled based on the permissions of the user.
Search	Allows the user to search for a file.
File	Displays the file name.
Last Used Template	Displays the mapper template last used for the loader file.
File Status	Displays the status of the last action performed with the file.

File Status

The following table describes the file status.

Status	Description
FILE IMPORTED	When data is imported successfully from Cisco Unified Communications Domain Manager.
FILE IMPORT FAILED	When file import from Cisco Unified Communications Domain Manager fails.
FILE IMPORT IN PROGRESS	When file import from Cisco Unified Communications Domain Manager is in progress.
FILE MODIFIED	When a file is modified from the View or Edit.
LOAD COMPLETE WITH ERRORS	When loading of a file is complete but record shows error in loading the file.
LOAD FAILED	Load failed due to network issues or exceptions.
LOAD IN PROGRESS	When load is in progress.
LOAD SUCCESSFUL	When load completed successfully without errors.
NEW FILE	When a new file is uploaded from desktop.
NO STATUS FOUND	When no status for the file is available.
VALIDATION COMPLETED	When validation is complete successfully (full or partial validation).
VALIDATION ERRORS	When validation is complete and have errors (full or partial validation).
VALIDATION FAILED	When validation fails to kick off or exceptions (full or partial validation).
VALIDATION IN PROGRESS	When validation of file is in progress (full or partial validation): • Full Validation: When all the fields of Excel spreadsheet are validated. • Partial Validation: When some of the fields of Excel spreadsheet are validated.
VALIDATION PROLONGS	When validation status does not change withing 5 seconds. Click on Refresh Table icon to update the validation status.

Mapper Tab Reference

The following table outlines the functions available on the loader tab.

Item	Description
Create	Opens the create window.

Item	Description
Delete	Deletes the file from HIL.
Edit	Allows the user to edit the file.
Download to desktop	Allows the user to download a file to their desktop. Users can then edit the spreadsheet and then upload.
Upload from desktop	Allows the user to upload a file from their computer.
Copy	Copies the file
Rename	Renames the file.
View	Allows the user to view the file.
Name	Displays the name of the file.
Owner	Displays the owner of the file.
Modified	Displays the date the file was last modified.
Last Modified by	Displays the name of the user that last modified the file.

Config Tab Reference

After you click the config tab, you can view or edit the configured target system's (Cisco Unified Communications Domain Manager) host name and host ID.

Field	Description
Target System	Displays the name of the target system (CUCDM)
Target System Host	Displays the name of the target system host
Target System IP	Displays the IP address of the target system

C H A P T E R 3

Cisco Unified Communications Domain Manager Administration Menu

Platform Coexistence

Cisco Hosted Collaboration Solution supports Cisco Unified Communications Domain Manager 8.1(x) and Cisco Unified Communications Domain Manager 10.x/11.5(x). However, this document only applies to Cisco

Unified Communications Domain Manager 10.x/11.5(x). For information regarding bulk provisioning on Cisco Unified Communications Domain Manager 8.1(x), see *Bulk Loader Guide for Cisco Unified Communications Domain Manager 8.1.4*.

http://www.cisco.com/c/en/us/support/unified-communications/hosted-collaboration-solution-hcs/tsd-products-support-series-home.html

Bulk Load Overview

The bulk loader tools let you quickly and easily manage system data using pre-populated Microsoft Excel spreadsheets. The system generates a spreadsheet template for any GUI or API resources in the system. For Configuration Templates, the sheet cannot be used to bulk load, they should be imported as a JSON file. Column headers specify the hierarchy, action, search criteria, and attribute names of the model where the data applies. Use a single sheet in the file to manage multiple templates by adding additional header rows and data under them. A file can include multiple sheets with one or more templates on each.

A loaded file can be processed immediately or scheduled for a later date and time. A scheduled bulk load file is listed on the Schedule list view as a Single Execution schedule type and with resource type of data/BulkLoad. Items on the Schedule list are deleted once they have been executed. After a scheduled bulk load has been executed, you will no longer see it in the list of schedules.

The system creates a single parent transaction for the entire bulk load. Unless a sheet is set to execute rows in parallel (at the same time), each row in the bulk load sheet results in a separate sub-transaction that is executed sequentially and synchronously. If a single sub-transaction fails, the bulk load transaction continues and does not roll back the earlier sub-transactions. In the case where a bulk load sub-transaction has other sub-transactions, for example, a provisioning workflow with multiple steps, if any step fails, the system rolls back all the steps in the bulk load sub-transaction.

If a sheet is set to process rows in parallel, then by default, 13 rows are processed in parallel.

If a file is processed and further files are loaded, they are processed at the same time. The system executes bulk load transactions in parallel, as with all transactions. Bulk load transactions are executed immediately.

Once the system starts the transactions, you cannot cancel them.

Data Export

Data can be exported in JSON format and as MS Excel spreadsheets.

The system JSON file format is used to Export and Import various operations on model instances. The operations available via JSON files are: Add, Modify, Delete. This Import and Export task is carried out from the GUI or API using the file Export and Import functionality.

The JSON file format for the different operations is available from the **Action** button on the GUI form of the specific model and choosing JSON as Export format from the drop-down list on the Export menu. The API provides a request URL and parameter for this task. The export file format is a compressed JSON file. The import filename and format can be <filename>.JSON, <filename>.JSON.zip or <filename>.JSON.gz.

The Excel file format for data export of selected items can be carried out in the list or instance view of a model.

The commands are available from the **Action** button on the GUI form by choosing either Excel or Excel (formatted) from the drop-down list on the Export menu. The API provides a request URL and parameter for this task. The export file format is a MS Excel XLSX file.

Bulk Load Template Export

The Cisco Unified Communications Domain Manager 10.x/11.5(x) multi-domain core supports the ability to generate an Excel format spreadsheet bulk load template for any of the resources in the system directly from the user interface. You can use a bulk load template spreadsheet from a model to create a template for the user interface. This template can be populated with data and loaded using the Bulk Load Administration tool.

Excel Bulk Load operations using spreadsheets support multiple (tabbed) worksheets that are loaded in tab sequence. Defined Configuration Templates on the system can be referenced in the sheets and applied during the Bulk Load operation.

The field-specific help of the product can be used to assist the user with populating the bulk loaders with the correct data.

Bulk Load Sheets

An exported bulk load template is a workbook containing a single sheet and serves as the basis for bulk loading. You can also create a tabbed workbook, that contains more than one sheet. For tabbed workbooks, bulk load transactions are executed from the leftmost sheet or tab to the right. For example, if a site is to be added under a customer, the customer sheet tab should be to the left of the associated site.

The bulk loader fields and the fields that are used in the JSON payload of the API calls for adding new items are the same and both give information as to what data is needed for the API.

The workbook or spreadsheet, is in Microsoft Excel .xlsx format and the maximum file upload size is 4GB. You can specify any name for the file and load the same spreadsheet multiple times, although the best practice is to use different names.

To bulk load data, first verify existing information on the sheet and determine what information is required to prepare the worksheet for the results you want.

For information on performing and exporting bulk loads see Perform a Bulk Load, on page 36 and Export a Bulk Load Template, on page 36.

Bulk Load Sheet Layout

This topic describes a typical generated sheet when using the Export Bulk Load Template menu option. Colors and styles are applied to the exported sheet:

- dark colors style for header rows

- yellow text for base group titles

- mandatory fields have red title text headers

- optional fields text headers are in white

Although an attribute that has nested attributes may be optional, if this attribute has mandatory nested attributes, then the containing attribute becomes mandatory. If a field is mandatory, it is shown on the sheet regardless of any Field Display Policy instruction to hide it.

The Field Display Policy that applies to a menu item from which a Bulk Load Template Export is carried out, is applied to the exported sheet as follows:

- Titles of attributes

- Sequence of the attributes

- Group names

- Hidden fields, with the exception of mandatory fields.

Note

Although macros can be entered into row fields, these will be loaded as text (for example in Configuration Templates). Fields in bulk load sheet data rows cannot contain macros to be evaluated upon bulk loading.

A single sheet of a file can be used to manage multiple templates by adding additional header rows and data under them. A workbook file can include multiple sheets with single or multiple templates on each.

A common generated bulk load sheet contains the following information:

- Sheet name: any name can be provided for the tab or sheet name. If the sheet name is prefixed with a # on the tab, the sheet is ignored during loading.

- **Row 1 - Resource**: the exported bulk loader template has the resource as target entity (model), and the hierarchy on the top row of the sheet. Verify the entity in the first row of an exported sheet. The reference data in the first row is of the format shown below, with variable values indicated in {}:

```
entity: {entity name}; \
hierarchy: {hierarchy}; \
parallel: {True | False}; \
parallel_transaction_limit: {n}; \
template: {config_template}; \
meta_prefix: {c}
```

  ◦ `entity: {entity name}`: the name of the model, in the format `{modeltype}/{model name}`, for example `data/User`

  ◦ `{hierarchy}`: the hierarchy, in the format `{level1}.{level2}.{level3}`, where `{level1}` is the first system level. Verify the hierarchy at which the bulk load takes place.

  A column with the name **# Hierarchy Node** is also available so that individual rows of a sheet can be loaded to a specified hierarchy. If a hierarchy is specified in this column for the row, it takes precedence over the hierarchy in the first row. The format for the hierarchy in the row is the same as for the first row: the full hierarchy, with levels separated by dots.

  ◦ `parallel`: True or False. By default, the value is False and rows are processed sequentially.

  Sheet rows can be processed in parallel. The sheet should not contain multiple, sequence-dependent models. Large numbers of rows for complex models on the sheet reduces the duration of a bulk load transaction by parallel processing.

  By default, 13 rows are processed in parallel. Bulk loads are low-priority transactions limited to 50% of the maximum allowed parent transactions (30 per unified node by default, and 50% amounts to 15 per Unified Node). The default value assumes that one slot is used to execute worksheet and another is used by the parent bulk load transaction itself.

  The maximum allowed parent transaction limit can be modified from the Command Line Interface (CLI) using the command:

  voss workers <number>

  parallel transaction limit: the maximum number of rows that can be processed in parallel by the bulk load at any given time. The minimum value that can be set is 1 and the maximum is 100.

- ◦ `parallel_transaction_limit`: The maximum number of rows that can be processed in parallel by the bulk load at any given time. The minimum value that can be set is 1 and the maximum is 100.

- ◦ `template`: The Configuration Template `{config_template}` that is associated with the user's menu item for the `{entity_name}` from which the export was carried out. The exported sheet shows a row of values from the Configuration Template.

   When a sheet is created to bulk load, the Configuration Template is available on the target system. The template only applies to sheet rows with create specified in the **# Action** column.

- ◦ `meta_prefix`: By default, the value is $. The # character cannot be used, as it is used for comments. The character is prefixed to the # Base group of columns in Row 2. The purpose of the prefix is to distinguish base sheet columns from other attributes on bulk load sheets. Note that the bulk load sheets will fail to load if the # character is is used as prefix. An error message will be shown in the transaction log.

- • Base columns (grouped by `#` `Base` in Row 3). The list below shows the column values with the default value of `meta_prefix`.

   - ◦ **Comments**: Any row that contains a # character in column A is considered a comment row and is ignored. Empty rows are also ignored. Column A - the first column - is also a **# Comment** column, so that any value entered in it is considered a comment. If all rows on a tab are commented, but the tab name itself is not commented, the tab sheet load fails.

   - ◦ `$hierarchy`: A hierarchy column with the name `#` `Hierarchy` `Node` is also available so that individual rows of a sheet can be loaded to a specified hierarchy. If a hierarchy is specified in this column for the row, it takes precedence over the hierarchy in the first row. The format for the hierarchy in the row is the same as for the first row: the full hierarchy, with levels separated by dots.

   - ◦ **Action**: Any row that contains an action in the **# Action** column : **create**, **delete**, **modify**, **execute** or a custom action name, has the action carried out. The action values in the column are case insensitive. If no action is added, the add action is carried out. This list shows the functionality for the values entered in the row. Also refer to the Search Fields entry.

      - ◦ **add** or empty - the data in the attribute columns is added. Any values in the **# Search Fields** column are ignored.

      - ◦ **delete** - the row matching the unique criteria in the **# Search Fields** column is deleted.

      - ◦ **modify** - the row matching the unique criteria in the **# Search Fields** column is updated with values in the attribute columns. Refer to the Search Fields entry.

      - ◦ **execute** - if the action is available for the model, the row matching the unique criteria in the **# Search Fields** column is executed using any values entered in attribute columns.

      - ◦ custom action name - if the custom action is defined for the model, it is carried out for the row matching the unique criteria in the **# Search Fields** column.

   - ◦ **Search Fields**: The column applies to rows where the action is not **add** and consists of a colon-separated list of attribute names and values. For example, `fullname:'John Smith',username:jsmith`. Recall however, that the **pkid** field takes precedence over the search fields criteria.

- **delete** - the search fields and corresponding attribute values uniquely identify the model instance to delete.

- **modify** - the search fields and corresponding attribute values uniquely identify the model instance to modify, with the values to modify in the attribute columns.

- **execute** - the search fields and corresponding attribute values uniquely identify the model instance to execute.

Where the sheet is for a Relation model, only the left model attributes in the Relation can be in the Search Fields column. This is the standard search behavior for Relations.

- **Device**: The column is used when a sheet includes attribute columns that belong to a device model. This column then contains the comma-separated list of business keys of the device model and its hierarchy. These values narrow the search for the device to which the data in the sheet applies. Examples of such sheets would contain device models or relations that have device model attributes in the left association of the relation.

  The format of the values in this column is:

  `<business_key1>,<business_key2>,...,<business_keyn>,<device_hierarchy>.`

  For example, if a Unified CM instance in a model `data/CallManager` has `host` and `port` as business keys, the value is:

  `10.120.2.175,8443,sys.Varidion.InGen.Tokyo.`

- **$template** (Configuration Template): If a row that contains a Configuration Template name that applies to the model, this template is applied to the row when it is loaded. Upon bulk loading, values in this column will override any value for template in the sheet header.

- **Network Device List**: The column is used when a sheet includes attribute columns that belong to a device model. This column then contains the name (business key) of the Network Device List that includes the device attribute. If the **Device** column is also filled in, then the value in the **Network Device List** column overrides it.

- **Unique Identifier**: On modify, delete, execute, and custom action operations, this `pkid` is used to identify the resource represented in the row data. The `pkid` field takes precedence over the search fields criteria when locating a resource. The pkid is unique to the resource on the particular database and cannot be relied upon when attempting to manipulate an identical resource on a different database.

- **CFT Template**: If a row containing a Configuration Template name applies to the model, this template applies to the row when loaded. Upon bulk loading, values in this column override any value for template in the sheet header.

> ✎
>
> **Note**   If configured in the system a default CFT is used as the CFT template, no CFT is used if this field is blank.

- Row 2 - Sheet base column names

  - base column names (prefixed by the meta_prefix character and listed above)

  - attribute names. Entity attribute names show as column header data in the spreadsheet.

Columns can be in any order in a row. Nested object attribute names follow a dot notation.

Array objects are sorted, so that attributes with names such as `filter_fields.<number>.xx` are sequenced, for example, `filter_fields.0.xx`, `filter_fields.2.xx`, and so on before further ordering (represented by `.xx` here) is applied.

- ◦ If a column header starts with a #, the column is not loaded.

- ◦ If a column header is blank, this indicates the end of the sheet header. Subsequent columns is not loaded.

  Attribute names are validated. If a name is not valid, the bulk load fails and displays a validation error.

- **Row 3 - Group or description**: The row provides a description of a column or else the group name of attributes that are grouped on the GUI: tabs on the detail or input form. This group is specified in the row by merging the group name across all the columns of the group. For attributes that are required and are not grouped in the GUI (or may be hidden in the GUI), the group name: Not Grouped Fields is given on the sheet. "Default" values of attributes in this group must be removed from an exported sheet before the sheet is used to bulk load rows.

- **Row 4 - Title or Reference**: The name of the reference for hierarchy, action, and so on, or the title that corresponds with the friendly name of the Column attribute as on the GUI and can be modified by a Field Display Policy.

Data rows-The expoted templates contain no data.

Styles are applied to the exported sheet: dark colors for header rows, while mandatory fields have red title text headers. Optional fields are in white.

Although an attribute that has nested attributes may be optional, if this attribute has mandatory nested attributes, then the containing attribute becomes mandatory. If a field is mandatory, it is shown on the sheet regardless of any Field Display Policy instruction to hide it.

Note As part of the bulk loader sheet design, see the API payload posted to the system. The data entered in the loader sheet columns should correspond with the API payload. GUI drop down lists may contain user-friendly titles, while the actual value sent to the API may differ.

Bulk Load Limitations

The Cisco Unified Communications Domain Manager 10.x/11.5(x) automation templates include a rich set of features that incorporate the use of configuration templates, customizable field display policies, and GUI rules that enhance the user experience of the user interface.

You can generate bulk load templates for resources that have limited ability to produce the same provisioning results obtained when using the user interface and require additional consideration.

An overview of these limitations is provided below:

- You can use certain fields to link together different resources (for example, the name of the Cisco Unified Communications Manager remote destination links to the user ID of the user name).

These fields may not be exposed in the user interface or may, for some resources, be exposed as read only in the user interface. Such fields are currently exposed as mandatory fields in the generated bulk load templates. The fields and the specific conventions that are used in the template to link the fields together are highlighted in notes specific to the resource. For example, you can specify the value for remote destination name as `RDP-<username>`.

- Certain fields are derived from other data in the system. The notes specific to the resource highlight where to get the possible values for such fields. Examples of this are key-value type fields of a phone's vendor configuration settings.

- GUI Rules defined in the user interface that are not replicated in the backend workflow need to be specified in the loader to get the same provisioning results as the GUI. For example, the GUI rules may:

  - Set a default value for a visible field (fixed value or derived from other data in the system). You should include this column and corresponding value in the loader for this to be provisioned.

  - Set a value for a hidden field - This column and corresponding value will have to be included in the loader for this to be provisioned. Note that this means that fields may be included in the loader that would not be visible in the user interface.

  - Make a field visible depending on some condition such as the value of another field (for example, a checkbox being selected). Include all necessary condition-defining columns and values in the loader.

A GUI Rule may disable input fields based on the state of a check box. On the spreadsheet, the selected check box is represented as TRUE in the column. The columns associated with the disabled fields should not be filled.

To overcome the complexities introduced by the above limitations, a set of sample bulk load sheets have been generated that enable users to get started quickly and to leverage the best practices developed by Cisco and partners.

Sample Bulk Loaders

Sample bulk loaders enable a quick start by providing working examples of the most frequently used loaders. These can be customized according to user requirements and data. Sample bulk load sheets incorporate best practices for using bulk loaders; ensuring rapid customer and subscriber on-boarding.

Note that the sample loaders are built according to the default Field Display Policies and Configuration Templates that are shipped with the product. Since these are configurable, the use of non-default Field Display Policies or Configuration Templates may result in a change of the sample loaders. For example, if an additional field is exposed by the Field Display Policy, it needs to be added if it is to be managed in the loader.

The latest sample bulk loaders can be obtained from your account team.

Bulk Load Transactions

After you run a bulk load transaction, the transaction log is available on the user interface.

Choose **Administration Tools > Transaction**. The log displays bulk load transactions:

- In the list view, the bulk load is shown in the Action column of the log. If the bulk load was scheduled, this is shown as a schedule with the detail column indicating it to be a bulk load.

- The submitted, start, and stop time for the entire bulk load transaction is shown in the transaction detail.

- In the list view, the Detail section displays the name of the file that is bulk loaded as well as the timestamp of the bulk load. For scheduled bulk loads, the detail section indicates the transaction as a "Bulkload".

The system validates the user's access profile, the provided hierarchy information, and data constraints for the bulk load transaction when updating the target models. The parent bulk load transaction will show the error message if this validation fails and no rows are loaded.

Where rows are loaded, each row in the bulk load spreadsheet appears as a sub-transaction within the bulk load transaction. The Message box shows the number of successful and failed rows loaded.

For each loaded spreadsheet, bulk load transactions are run in series for each row. Multiple bulk load spreadsheets can be loaded and these transactions will load at the same time.

Spreadsheet rows can be processed at the same time and should not contain multiple, sequence dependent models.

For each row of the bulk load sheet carrying out the default add action, a Create action is shown on the list of transactions. Sheet rows that led to a successful Create action have a Success status, while rows that failed show a Fail status. If a row fails, the load process continues. For failed actions, the transaction can be selected to show the error message.

If one or more rows of the spreadsheet failed to load, the Bulk Load action displays a Fail status, and the sub transactions status is Fail.

On the list of sub transactions, choose the transaction Link hyper-link to inspect the details of each sub transaction. For example, the submitted, start, and stop time for the bulk load sub transaction corresponding with a row on the bulk load spreadsheet is shown. In the case of a failed sub transaction, further information about the failure - such as the error message and row data - is shown in the sub transaction Link.

A canceled bulk load transaction means the processing spreadsheet sub transaction, and all sub transactions within the spreadsheet transaction in a processing or queued state, will fail.

For parallel transactions, multiple resource transactions may be in a Queued or Processing state. By default, 13 rows are processed in parallel. Refer to the topic on Bulk Load Sheet Layout for more details. If a spreadsheet transaction fails as a result of bulk load transaction cancellation, subsequent spreadsheet tabs in the bulk load workbook will not be processed by the bulk loader.

Template Location

You can download bulk loading templates from the Cisco Unified Communications Domain Manager GUI using the **Actions** menu on the upper right-hand side of the screen. You can select **Export Bulk Load Template** to open the file in Excel or to save the file to your desktop or removable storage device.

Modification of Bulk Load Templates

The information in the first row of the bulk load templates shows the required hierarchy node and relation.

However, in the HCS Intelligent Loader (HIL), the administrator identifies the hierarchy node and selects the model to be used.

When using the standard bulk load templates in HIL, the administrator must edit the template and remove the first row or comment it out by using "#" as the first character in the first row.

You can also use the bulk load templates to override the selected hierarchy. The administrator can add the following row to the excel sheet: $hierarchy:<HIERARCHY_VALUE>. This ensures that the operations will be performed at the hierarchy specified in the spreadsheet.

Obtaining BulkLoading Template Reference Set

You can download the latest BulkLoading Template Reference Set from the following links:

Note Templates are examples and for reference only. Use at own risk.

HIL reference templates:

Mode of Operation	Mapper	Loader	Description
ADD/DELETE	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/Multi_Mapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/Loader_MultiSheets.xlsx	Day1 provisioning (customer, site, adding UC APPS, adding dial plans, DN, LDAP servers, and subscribers).
EDIT	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/SubscriberEditMapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/Subcriber_EDIT_Sheet.xlsx	These sheets are used for editing subscribers.
DELETE	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/DeleteSiteMapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/DeleteSite.xlsx	These sheets are used for deleting sites.
	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/DeleteCustomerMapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_1/CUCDM_10_6_1/Bulk_Provisioning/Bulk_Loaders/DeleteCustomer.xlsx	These sheets are used for deleting customers.

Mode of Operation	Mapper	Loader	Description
ADD	www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/Add_AnalogGatewaywithEndpoints_Mapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/Add_Analog_MultisheetLoader_MultipleEndpoints.xlsx	These sheets are used for Adding Analog Gateway(VG202,VG204,VG224,VG310,VG320,VG350) Models.
DELETE	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/Delete_AnalogGatewaywithEndpoints_Mapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/Delete_AnalogGatewaywithEndpoints_Mapper_1.xlsx	These sheets are used for Deleting Analog Gateway(VG202,VG204,VG224,VG310,VG320,VG350) Models.
EDIT	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/Edit_AnalogGatewaywithEndpoints_Mapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/Edit_Analog_MultisheetLoader_MultipleEndpoints.xlsx	These sheets are used for Editing the Analog gateway(VG202,VG204,VG224,VG310,VG320,VG350)
ADD	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/LBO_SheetMapper.xlsx	http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/LBO_ADDMultiSheet.xlsx	These sheets are used for Adding/Editing SIPTrunk, IOS Devices, SIPLocal Gateway,Associate Local Gateway to SITE.
EDIT		http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/10_6_2/Bulk_Loaders/LBO_EditMultiSheet.xlsx	**Note** The same mapper is used for both ADD and EDIT.

Cisco Unified Communications Domain Manager 10.x/11.5(x) reference templates:

https://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/hcs/11_5/Bulk_Loaders/CUCDM_10x11x_Reference_Bulk_Loaders.zip

✎

Note Cisco Unified Communications Domain Manager 8.1(x) reference template:
https://software.cisco.com/download/release.html?mdfid=286311598&softwareid=284970293&os=&release=8.1.9&relind=AVAILABLE&rellifecycle=&rel

Using the BulkLoading Template Reference Set for HCS Intelligent Loader

Download the bulk load template reference set, containing both loader and the mapper files. Mapper files contain the mapping references to the corresponding loader files that are downloaded. Mapper files must be updated with the proper column headers to use a different loader file.

Mapper files can be edited using Microsoft Excel. You can remove the fields which you do not intend to use, or add additional fields, as long as they are in line with the target fields of CUCDM.

There are two types of reference sets available:

- **Individual model set** - Contains a separate loader & mapper for each model (Subscriber, Phone, Customer, Site etc)

- **Multi-model set**- Each model is specified in one sheet of the workbook and all these models are mapped in one mapper.

Template Structure

The bulk loading template reference set includes sample templates for provisioning a provider, reseller, customers, customer nodes, sites, subscribers, and subscriber services. The reference set includes two spreadsheets:

- The first spreadsheet includes templates that cover a sample workflow starting from adding a Cisco Hosted Collaboration Mediation Fulfillment node, building out a provider, and progressing through to adding a customer, customer application nodes, and finally adding sites and dial plan elements.

- The second spreadsheet includes templates that cover directory number allocation, subscriber provisioning, subscriber device provisioning, and subscriber service provisioning.

For all spreadsheets, sample data is provided, but administrators need to update the spreadsheet to match the requirements and details of the deployment. Many templates also have several samples to provision the same item to provide flexibility.

All the bulk loader sample templates correspond to menu items within the Cisco Unified Communications Domain Manager 10.x/11.5(x) GUI. However, the bulk loader templates include fields that are not in the GUI. These fields are hidden in the GUI and are pre-populated based upon rules and macros. When using the reference bulk loader samples, these hidden fields must be explicitly defined by the administrator. As a result, extra fields are displayed in the sample loaders that are not observed in theCisco Unified Communications Domain Manager 10.x/11.5(x) GUI. However, the functionality of the template in the sample bulk loader is equivalent to the same template being used with the associated menu item from the Cisco Unified Communications Domain Manager 10.x/11.5(x) GUI.

Hints and Tips

- The bulk loader templates are organized in a logical, sequential flow, and assume a blank Cisco Unified Communications Domain Manager 10.x/11.5(x) system. Starting with the Cisco Hosted Collaboration Mediation Fulfillment device template, the templates are provided in order of provisioning sequence.

- Cisco Unified Communications Domain Manager 10.x/11.5(x) loads a specific bulk loader sheet serially. Starting with the top template defined in the first tab of a spreadsheet and continuing from top to bottom and left tab to rightmost tab.

- For parallel loading, create a new spreadsheet with the template information you want and load it into Cisco Unified Communications Domain Manager 10.x/11.5(x). If a spreadsheet is currently processing, loading a new one causes the system to process the new spreadsheet at the same time as the spreadsheet that is currently processing.

- A combination of bulk loading, provisioning the GUI, and provisioning via the Cisco Unified Communications Domain Manager 10.x/11.5(x) API is possible with bulk, GUI, and API provisioning occurring in parallel.

- During the loading of a bulk loader template, you can use the Transaction menu item to check the status, progression, and also to check for any loading errors.

- Currently, it is not possible to pause or cancel a bulk loading transaction in progress.

Included Templates

The bulk loader reference set is displayed below. For more information and detailed descriptions, see *Cisco Unified Communications Domain Manager, Release 11.5(1) Maintain and Operate Guide*.

- HcsHcmfREL

- HcsProviderREL

- HcsResellerREL

- HcsCustomerREL

- HcsCallManagerREL

- HcsUnityConnectionREL

- HcsPresenceREL

- HcsNetworkDeviceListREL

- HcsSiteREL

- HcsLdapServerREL

- HcsWebExREL

- HcsDpManageCustomerREL

- HcsDpManageSiteREL

- HcsDpVmServiceREL

- HcsDpAssociateVmSvcToCustomerREL

- HcsDpVmPilotREL

- HcsSipTrunkREL

- SubscriberPhone

- Subscriber

- DirectoryNumber

- CallPickupGroups

- HuntGroupRelations

Perform a Bulk Load

You can load completed .xls format Bulk Load spreadsheets into the system immediately. First ensure that any Configuration Templates referenced in the spreadsheets are available.

Procedure

Step 1   Browse to the hierarchy level at which you want to perform the bulk load.

Step 2   Choose **Administration Tools> Bulk Load**. The Bulk Load form is displayed.

Step 3   Click **Browse** to open the file upload dialog.

Step 4   Click**Bulk Load File** on the button bar to perform the bulk load.

Step 5   Choose **Administration Tools > Transaction** to inspect the bulk load in the transaction log. The **Execute Bulk Load** sub-transaction list shows the transaction for each row of the sheet.

Step 6   Alternatively, to schedule the bulk load, deselect the Execute Immediately check box and add scheduled date and time values in the Execution Date, Execution Time, and Execution Timezone fields. A scheduled bulk load is shown on the list view of the Schedule and has the name and upload load date of the spreadsheet.

Export a Bulk Load Template

You can enter data in the bulk load template spreadsheet and then upload it with the Bulk Load Administration tool.

Procedure

Step 1   Choose the Hierarchy where the model is available.

Step 2   The button to export a Bulk Load Template of a model is available on any of the following forms:

- Model design form

- Model instance

- Model list view

Step 3   Go to the required form and click **Export Bulk Load Template**.

Step 4   An Excel spreadsheet is created that contains the bulk load template for the selected model. This spreadsheet is available in the download directory of the browser application.

Bulk Export of Model Data

Procedure

Step 1 Choose the hierarchy to which the model belongs.

Step 2 Select the items to be exported from the List view and click the **Action** button. Choose the Export menu and select the required format from the Export format dropdown list.

Step 3 Click **OK** to export the selected items. The following file formats correspond with the selected dropdown item in the list:

    a) JSON - an export containing data in JSON format as in the system database. Item properties such as strings that are empty or Boolean values that are not set, are not included. The filename format is: *export_YYYY-MM-dd_HH_MM_SS.nnnnn.json.zip*

    b) Excel - an export containing data and Excel columns for all fields as shown in the JSON export format. The filename format is: *<type>_<name>_exportedsheet_CCYY-MM-DD_HH-MM-SS.xlsx*.

    c) Excel(formatted) - an export containing data and Excel columns as arranged by any Field Display Policies that apply. The columns correspond with those of a Bulk Load Template export sheet. This sheet can therefore be used to modify and update data if required. The filename format is: *<type>_<name>_exportedsheet_formatted_CCYY-MM-DD_HH-MM-SS.xlsx*.

Step 4 If required, the export JSON file can be decompressed, and the JSON file (.json) can be opened in a text editor. The XLSX file can be opened in MS Excel.

APIs

- Bulk Load API, page 39
- HCS Intelligent Loader APIs, page 42

Bulk Load API

Two API calls are required.

Task	Call	URL	Parameters	Response
Submit file	POST	`/api/ uploadfiles/` This URL will be moved to tool/UploadFile in future.	`hierarchy=[hierarchy]` `Content-Type:` `    multipart/form-data` `name='uploadedfile'` `filename=<filename>` `the file to upload`	`{"uploadedfiles":` `[{"id": "<file_id>",` `"name": "<filename>"}]}`

The response is HTTP 202

Task	Call	URL	Parameters	Payload

Bulk Load	POST	`/api/tool/ BulkLoad/`	`method= bulkload_spreadsheet hierarchy=[hierarchy]`	Examples:
				
				`{'bulkload_file': '<filename>', 'execute_immediately': true}`
				
				or:
				
				`{'bulkload_file': '<filename>', 'execute_immediately': false 'execute_date': '2013-06-20', 'execute_time': '12:00:00', 'execute_timezone': '0'}`

The following `curl` commands illustrate the two steps:

Step 1

```
curl -H 'Authorization: Basic <auth_key>'
    -F uploadedfile="@<file>.xlsx"
    'http://<hostname>/api/uploadfiles/'
```

Step 2

```
curl -H 'Authorization: Basic <auth_key>'
    -H 'Content-Type: application/json'
    -H 'accept: application/json'
    --data-binary '{"bulkload_file":"DEMO.xlsx","execute_immediately":true}'
    'http://<host>/api/tool/BulkLoad/?hierarchy=[hierarchy]&
      method=bulkload_spreadsheet&
      nowait=true&
      format=json'
```

The response to this call is for example as in the following table.

Response

`{"href": "/api/tool/Transaction/0b340a6f-b658-48bb-ac8c-7562adc5572d",`
`"success": true,`
`"transaction_id": "0b340a6f-b658-48bb-ac8c-7562adc5572d"}`

- If the Bulk Load is to be scheduled, the payload of the second task includes schedule details:

  ◦ *execute_immediately* is set to false

  ◦ *execute_date* is added in the format YYYY-MM-DD

  ◦ *execute_time* is added in the format HH:MM:SS

  ◦ *execute_timezone* is added in the format of a numeric value in minutes relative to UTC. For example, UTC is 0, UTC+2:00 is 120, UTC-1:00 is -60, and so on.

- An entry is also generated in the schedule; that is, an instance is added to the data/Schedule module.

- If the second task payload has *'execute_immediately': true*, a POST is generated to /api/data/Bulkload/. The payload includes the uploaded filename and a generated name and time stamp as well as a description, for example:

```
{'filename': '<file>.xlsx', 'description': 'Generated by Bulk Loader
Administration Tools', 'name': 'AnyUser.xlsx -- 2013-05-21
16:47:11.801664 (UTC)'}
```

To inspect the detailed progress and status of the transaction, use the API call from the response above:

```
GET /api/tool/Transaction/[pkid]
```

with parameters:

- `hierarchy=[hierarchy]`

- `format=json`

The response to this GET call is a JSON object that provides details of the transaction, as for example in the truncated snippet:

```
...
   "href": "/api/tool/Transaction/[pkid]
    "log_id": "53a8053ea616540708141f44",
    "message": "data_Countries_bulkloadsheet.xlsx is a valid
    "severity": "info",
    "time": "2014-06-23T10:45:18.029000",
    "transaction_id": "[pkid]"
  }
],
"pkid": "[pkid]",
"resource": {},
"rolled_back": "No",
"started_time": "2014-06-23T10:45:17.813000",
"status": "Success",
"sub_transactions": [
  {
    "action": "Execute Resource",
    "detail": "Execute : data_Countries_bulkloadsheet.xlsx -- ...
    "status": "Success",
    "submitted_time": "2014-06-23T10:45:19.567000",
    "transaction": "/api/tool/Transaction/[pkid1]    ...
  },
  {
    "action": "Create Schedule",
    "detail": "Name:data_Countries_bulkloadsheet.xlsx -- 2014- ...
    "status": "Success",
    "submitted_time": "2014-06-23T10:45:18.912000",
    "transaction": "/api/tool/Transaction/[pkid2]    ...
  },
  {
    "action": "Create Bulk Load",
    "detail": "Name:data_Countries_bulkloadsheet.xlsx -- 2014-06 ...
    "status": "Success",
    "submitted_time": "2014-06-23T10:45:18.419000",
    "transaction": "/api/tool/Transaction/[pkid3]    ...
  }
],
"submitted_time": "2014-06-23T10:45:17.794000",
```

The same transaction displays on the GUI.

For long transactions, to retrieve a summary of the status of the transaction, the transaction can be polled, using `poll` in the URL, using the same parameters:

```
GET /api/tool/Transaction/poll/?transactions=[pkid]
```

In this case, there is a shortened response, for example:

```
{"[pkid]":
 {"status": "Processing",
```

```
        "href": "/api/tool/Transaction/0b340a6f-b658-48bb-ac8c-7562adc5572d",
        "description": null}
}
```

HCS Intelligent Loader APIs

The following tables display the HCS Intelligent Loader (HIL) REST APIs and their respective methods and parameters:

- **/setup/configuration/{key}**

Parameter	Description	Value	Method
key		string	GET

- **/setup/configuration**

Parameter	Description	Value	Method
			POST

- **/setup/target/{id}**

Parameter	Description	Value	Method
Id	Identity value to be selected for the target system	int	GET

- **/setup/target**

Parameter	Description	Value	Method
			POST

- **/validaterService/validate/{hierarchy}/{operation}**?modelName &mappingTemplate &srcFilename

Parameter	Description	Value	Method
operation	Selected Operation to be performed like Add,etc	string	GET
hierarchy	Cisco Unified Communications Domain Manager Hierarchy under which the validation runs		
modelName	Name of the model		
srcFileName	Source file Name to be selected for validation		
MappingTemplate	mapping Template that is selected for validation		

• **/validaterService/getFileStatus**?fileName &sheetName &modelName &hierarchy

Parameter	Description	Value	Method
fileName	Name of the File for which Validation status is needed	string	GET
sheet Name	Sheet Name that is passed (Optional parameter)		
modelName	Name of the model		
hierarchy	Cisco Unified Communications Domain Manager Hierarchy under which the File exists		

• **/validaterService/fileData**?fileName &sheetName &modelName &hierarchy

Parameter	Description	Value	Method
fileName	Name of the file to be selected in which sheet exist	string	GET
sheet Name	Sheet Name that is passed as parameter to get its content		
modelName	Name of the model		
hierarchy	Cisco Unified Communications Domain Manager Hierarchy under which the File exists		

• **/validaterService/fileData/{hierarchy}**?fileName &sheetName &model

Parameter	Description	Value	Method
fileName	Name of the file that is to be saved	string	POST
sheet Name	Sheet Name of the File that is passed as parameter		
modelName	Name of the model		
hierarchy	Cisco Unified Communications Domain Manager Hierarchy under which the file should be saved		

• **/Importexport/DownloadFile**?model &hierarchy &filename

Parameter	Description	Value	Method
model	Name of the model	string	GET
filename	Name of the Mapping template file to download		
hierarchy	Cisco Unified Communications Domain Manager Hierarchy to download the file from		

• **/Importexport/UploadFile?**selectedModel &selectedHierarchy

Parameter	Description	Value	Method
selectedModel	Name of the model	string	POST
selectedHirarchy	Cisco Unified Communications Domain Manager Hierarchy to upload the file		

• **/Importexport/CopyFile?**Model &Hierarchy &SelectedFileName

Parameter	Description	Value	Method
model	Name of the model	string	POST
SelectedFileName	Name of the Mapping template		
hierarchy	Cisco Unified Communications Domain Manager Hierarchy to copy the file		

• **/Importexport/RenameFile?**Model &Hierarchy &SelectedFileName &NewFileName

Parameter	Description	Value	Method
Model	Name of the model	string	PUT
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to rename the file		
SelectedFileName	Name of the mapping template file		
NewFileName	New name of the mapping template file		

• **/mappingtemplate**

Parameter	Description	Value	Method
Model	Name of the model	string	POST

• **/mappingtemplate/listTemplates?**selected &model &hierarchy

Parameter	Description	Value	Method
Model	Name of the model	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy from where file is to be displayed		
Selected	Name of the mapping template file		

• **/mappingtemplate/listTemplates**/{id}

Parameter	Description	Value	Method
Model	Name of the model	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy from where file is to be displayed		
Selected	Name of the mapping template file		

• **/Importexport/DownloadFile**?model &hierarchy &filename

Parameter	Description	Value	Method
Model	Name of the model	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to download the file from		
Selected	Name of the mapping template file		

• **/Importexport/UploadFile**?selectedModel &selectedHierarchy

Parameter	Description	Value	Method
selectedModel	Name of the model	string	POST
selectedHierarchy	Cisco Unified Communications Domain Manager Hierarchy to upload the file		

• **/Importexport/CopyFile**?Model &Hierarchy &SelectedFileName

Parameter	Description	Value	Method
Model	Name of the model	string	POST
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to copy the file		
SelectedFileName	Name of the mapping template file		

• **/Importexport/RenameFile**?Model &Hierarchy &SelectedFileName &NewFileName

Parameter	Description	Value	Method
Model	Name of the model	string	PUT
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to rename the file		
SelectedFileName	Name of the mapping template file		
NewFileName	New name of the mapping template file		

• /LoaderService/DeleteFile?Model &Hierarchy &SelectedFileName

Parameter	Description	Value	Method
Model	Name of the model	string	DELETE
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to delete the file from		
SelectedFileName	Name of the uploaded file to delete		

• /LoaderService/DownloadFile?model&hierarchy&filename

Parameter	Description	Value	Method
Model	Name of the model	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to download the file from		
SelectedFileName	Name of the uploaded file to download		

• /LoaderService/UploadFile

Parameter	Description	Value	Method
		string	POST

- /LoaderService/ExportFile?Model &Hierarchy &FileName &MappingTemplate

Parameter	Description	Value	Method
Model	Name of the model	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to export the file from		
FileName	Name of the file to export from Cisco Unified Communications Domain Manager		
MappingTemplate	Name of the Mapping template to export		

- /LoaderService/listworksheets/{hierarchy}?model &templateID &filename

Parameter	Description	Value	Method
hierarchy	Cisco Unified Communications Domain Manager Hierarchy to list out worksheets of the file from	string	POST
model	Name of the model	string	GET
templateID	Name of the mapping template to list work sheet		
fileName	Name of the uploaded file to get lists of work sheets		

- /LoaderService/listworksheets/{hierarchy}?model &templateID &filename

Parameter	Description	Value	Method
hierarchy	Cisco Unified Communications Domain Manager Hierarchy to list out worksheets of the file from	string	POST
model	Name of the model	string	GET
templateID	Name of the mapping template to list work sheet		
fileName	Name of the uploaded file to get lists of work sheets		

- /LoaderService/CopyFile?Model &Hierarchy &SelectedFileName

Parameter	Description	Value	Method
model	Name of the model	string	POST
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to copy the file from		
SelectedFileName	Name of the uploaded file to make a copy		

• /LoaderService/RenameFile?Model &Hierarchy &SelectedFileName &NewFileName

Parameter	Description	Value	Method
Model	Name of the model	string	PUT
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to rename the file from		
SelectedFileName	Name of the the uploaded file to rename		
MappingTemplate	Name of the new file name to rename		

• /LoaderService/ExportFile?Model &Hierarchy &FileName &MappingTemplate

Parameter	Description	Value	Method
Model	Name of the model	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to export the file from		
FileName	Name of the file to export from Cisco Unified Communications Domain Manager		
MappingTemplate	Name of the Mapping template to export		

• /LoaderService/listworksheets/{hierarchy}?model &templateID &filename

• /LoaderService/CopyFile?Model &Hierarchy &SelectedFileName

• /LoaderService/RenameFile?Model &Hierarchy &SelectedFileName &NewFileName

• /LoaderService/loader/{hierarchy}/{operation}?modelName&mappingTemplate &srcFileName

Parameter	Description	Value	Method
Operation	Mode of operation Add/Edit/Delete	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to load the file from		

Parameter	Description	Value	Method
modelName	Name of the model	string	POST
srcFileName	Name of the uploaded file to load into Cisco Unified Communications Domain Manager		
MappingTemplate	Name of the Mapping template file to load		

• /LoaderService/listFiles?model &hierarchy

Parameter	Description	Value	Method
Model	Name of the model	string	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to load the file from		

• **/targetResources/query**?model_name &onlyFieldNames &hierarchy

Parameter	Description	Value	Method
model_name		string	GET
hierarchy			
onlyFieldNames		boolean	

• **/upload**

• **/commonresources**

• **/commonresources/hierarchy/{id}**

Parameter	Description	Value	Method
Id	Identity value, by default 1	int	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to load the file from	Default: 1	

• **/commonresources/login**

• **/commonresources/menu/{id}**

Parameter	Description	Value	Method
Id	Identity value, by default 1	int Default: 1	GET
Hierarchy	Cisco Unified Communications Domain Manager Hierarchy to load the file from		

- **/commonresources/issession**

- **/commonresources/hillogout**

- **/commonresources/logout**

- **//commonresources//userinfo**