Integrated Configuration Environment (ICE) for Cisco Unified Contact Center Domain Manager

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Table of Contents

Preface

Purpose

This document describes the Unified CCDM Integrated Configuration Environment (ICE) tool. ICE is a centralized tool that provides easy access to most of the configuration options available within the Unified CCDM platform.

Audience

This document is intended for network and system administrators who are familiar with network services, routing operations and administration.

Organization

This document contains the following chapters:

Chapter 1	Introduction to ICE
Chapter 2	Cluster Configuration
Chapter 3	Replication Manager
Chapter 4	Failover Manager
Chapter 5	Service Manager
Chapter 6	System Properties Manager
Chapter 7	Gadget Provider Manager

Document Conventions

This document uses the following conventions:

Convention	Description
boldface font	Boldface font is used to indicate commands, such as entries, keys, buttons, folders and submenu names. For example: • Choose **Edit > Find** • Click **Finish**
italic font	Italic font is used to indicate the following: • To introduce a new term; for example: A *skill group* is a collection of agents who share similar skills • For emphasis; for example: *Do not* use the numerical naming convention • A syntax value that the user must replace; for example: IF (*condition, true-value, false-value*) • A title of a publication; for example: Refer to the *Cisco CRS Installation Guide*
window font	Window font, such as Courier, is used for the following: • Text as it appears in code or that the window displays; for example: `<html><title>Cisco Systems, Inc. </title></html>`
< >	Angle brackets are used to indicate the following: • For arguments where the context does not allow italic, such as ASCII output • A character string that the user enters but that does not appear on the window, such as a password

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1   Introduction to ICE

1.1   About ICE

The Integrated Configuration Environment (ICE) application is a centralized tool that provides easy access to most of the configuration options available within the Unified CCDM platform. Individual configuration tools are components within ICE.

The ICE application supplied with Unified CCDM has the following components:

- Cluster Configuration

    - Provides functionality for configuring the network topology used by the Unified CCDM system. This tool enables configuration of servers, resources (for example, Unified CCDM components, Unified CCE components) and the connections between them. It also provides monitoring capabilities.

- System Properties Manager

    - Provides functionality for configuring system wide properties that control a variety of Unified CCDM components.

- Replication Manager

    - Provides functionality for configuring and monitoring SQL Server replication between Unified CCDM databases.

- Services Manager

    - Provides functionality for monitoring and controlling all Unified CCDM services across servers from a single centralized location

- Failover Manager

    - Provides functionality for performing manual switchover of the Data Import and Provisioning services between two servers.

- Custom Dimension Editor

    - Creates and edits custom dimensions.

- Gadget Provider Manager

    - Manages the Gadget Providers and Folder Mappings in the system.

ICE is installed as part of the Unified CCDM component installation..

1.2 Using ICE

1.2.1 Starting ICE

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCDM). In the **Database Connection** dialog box, set:

    • **Server Name**. Enter the name of the primary database server.

    • **Database Name**. Enter the name of the Unified CCDM database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.

    • **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. If there were errors or warnings in the configuration, then the error details are shown in the Cluster Configuration Error List pane (see section 2.2.5 "Cluster Configuration Error List Pane").

Note

When ICE starts, the Error List pane shows both connection errors and validation errors. Subsequently, the Error List pane only shows validation errors. But the connection status can be seen at any time on the Connections page (see section 2.7 "Connections Page").

1.2.2 ICE Menu and Toolbar

Common actions are visible in the menu and the tool bars at the top of the screen. The common actions supported by ICE are as follows:

Icon	Action	Description
💾	Save	Save any changes.
	Exit	Close the ICE application.
📋	Preferences	View the ICE tool and component preferences.
⬜	View Output	View the standard output feedback window.
↩	Undo	Undo the last change.
↪	Redo	Redo the last change.

- Configured actions may be shown in the menu, the tool bar or both. Generally, commonly used actions (for example, Undo, Redo) are displayed in both the tool bar and the menu, and less commonly used actions just appear in the menu.

- As an example, consider the File action shown in Figure 1.1 "Common File Actions". Save and Open are shown on both the menu and tool bar, whereas Exit and Preferences are only shown in the menu. The ICE tool in this example is the System Properties tool.
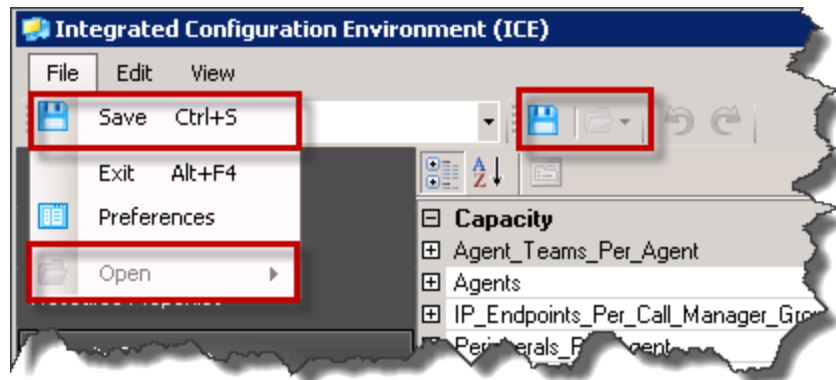
Figure 1.1   Common File Actions

1.2.3   ICE Tool Selection

The ICE application toolbar contains a drop down list below the menu (see Figure 1.2 "ICE Tool Selection Drop Down List"). This contains the available ICE tools. To start an ICE tool, select it from the drop down list.
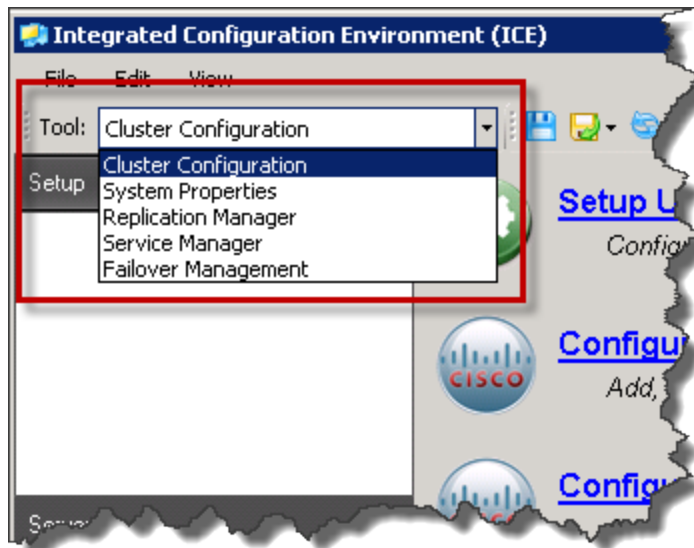
Figure 1.2   ICE Tool Selection Drop Down List

1.2.4   ICE Tool Area

The central area of the ICE application is used by each ICE tool for their own interface. Figure 1.3 "Central Pane for ICE System Properties Tool". shows the central pane for the ICE System Properties tool.
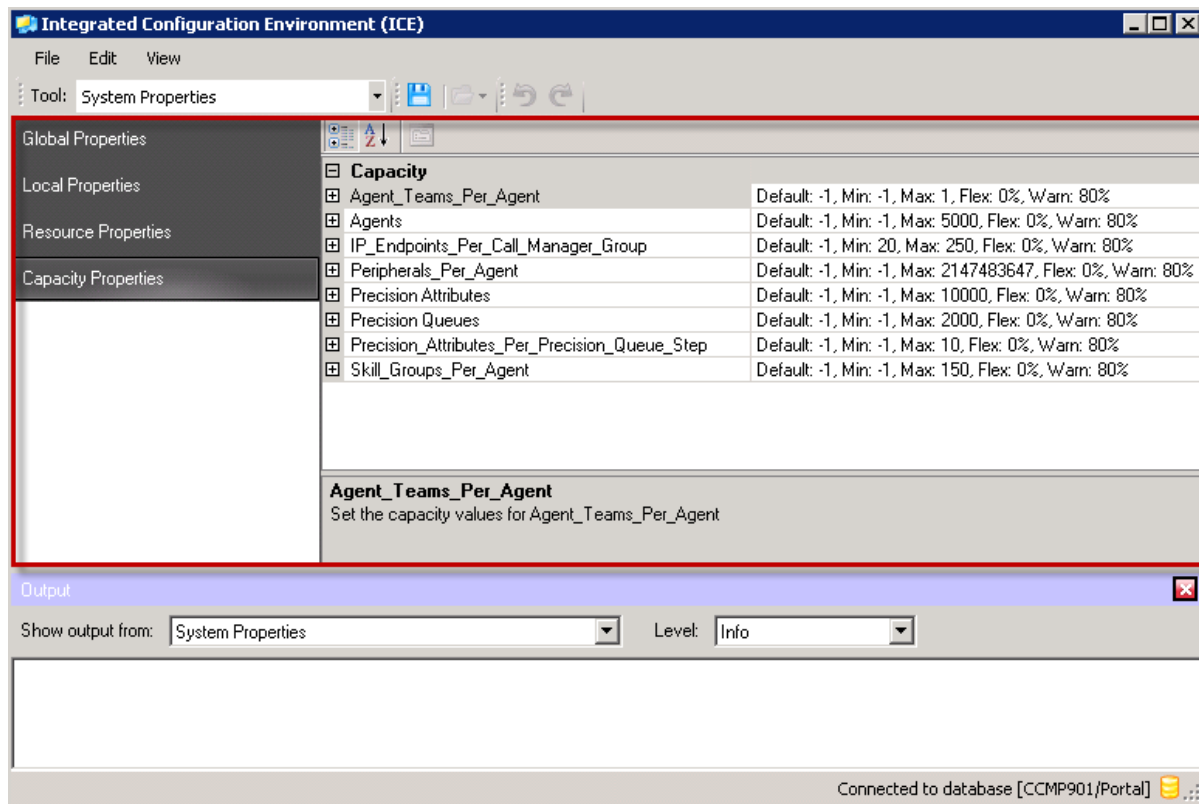
Figure 1.3   Central Pane for ICE System Properties Tool

1.2.5   ICE Output Pane

The bottom area of the ICE application contains an output pane showing the output from the active ICE tools. This area also contains any additional output panes from specific ICE tools.

If both the ICE output pane and a specific output pane are available, they are shown one on top of the other, with a tab to select the one that is visible. Figure 1.4 "Output and Error Panes for ICE Cluster Configuration Tool" shows the ICE output pane and the error list pane from the ICE Cluster Configuration tool. In this example, the ICE output pane is currently visible.
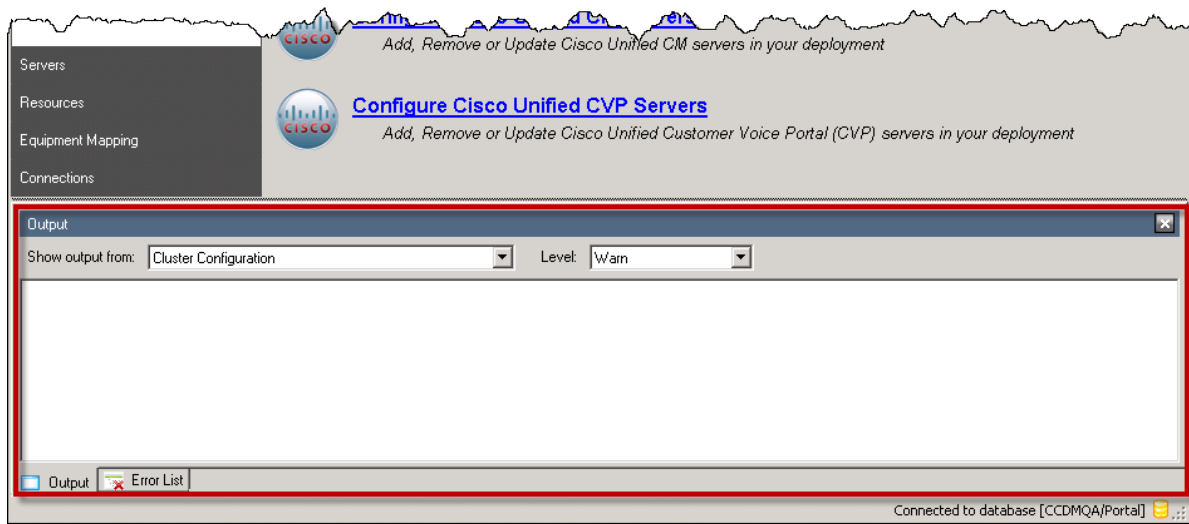
Figure 1.4   Output and Error Panes for ICE Cluster Configuration Tool

You can control the display of the output panes in the following ways:

- You can change the height of the whole area by dragging the top edge up or down using the mouse.

- You can close the current pane, by clicking on the cross at the top right of the pane.

- You can show or hide any currently available pane from the View menu.

You can control the output that is shown in the ICE output pane as follows:

- Click on the **Show output from** drop down list at the top left of the pane to show output from one ICE tool or from all ICE tools. In the example in Figure 1.4 "Output and Error Panes for ICE Cluster Configuration Tool" the output pane is showing the output from the Cluster Configuration tool only.

- Click on the **Level** drop down list to choose the level of output you want to see. In the example in Figure 1.4 "Output and Error Panes for ICE Cluster Configuration Tool" the output pane is showing the information level output messages.

2   Cluster Configuration

2.1   About Cluster Configuration

2.1.1   Description

The Cluster Configuration tool allows you to configure the Unified CCDM and third party servers and components in a Unified CCDM deployment. It also allows you to define connections between these components and specify the connection credentials. The cluster configuration created using this tool provides individual Unified CCDM components with information about how to route data within the system.

2.1.2   The Cluster Configuration Model

The Cluster Configuration tool provides a graphical interface over a model that is used as part of the generic Unified CCDM monitoring component to test and provide connections to all services in the Unified CCDM platform.

The underlying cluster configuration model consists of the following core objects:

- Servers
    - A server represents a physical computer on the network.
- Physical Resource Components
    - A physical resource component represents a real service running on a server. For example a ConAPI service or AW Database on an ICM.
- Physical Resource
    - A physical resource is a grouping of physical resource components that all form part of the same system. For example a Unified CCE system may consist of an AW and a ConAPI component.
- Logical Resources
    - A logical resource is a grouping of several physical resources that represent replicated versions of a single system. For example a Unified CCE system may be dual-sided, consisting of two distinct systems for fault tolerance and redundancy. In this situation there would be a single logical Unified CCE resource with 2 physical resources instances, one representing side A and the other representing side B.
- Physical Connections

- A physical connection represents a link between two physical resource components. The component being connected to is known as the destination component, and the component connecting is known as the source component.
- The Cluster Configuration tool supports loading and saving this model from both a Unified CCDM database and an XML file.

2.1.3 Equipment Mappings

Equipment mappings define mappings between folders and remote equipment which specify where imported items are placed in the Unified CCDM folder tree. They also control the visibility of remote equipment and their resources in the user interface.

2.1.3.1 Equipment Mappings and Importer Behavior

The importer uses the equipment mappings to determine which folder to place new items in. The folder is chosen by applying the following logic, in order:

- If the item being imported is owned by a remote tenant and there is a corresponding equipment mapping for that remote tenant, the importer chooses the folder defined by the mapping.
- If the item being imported is owned by a remote tenant but there is no corresponding equipment mapping for that remote tenant, the importer chooses the default import location folder, if one is defined.
- Finally if there is no remote tenant mapping or default import location mapping specified, the importer chooses the **/Unallocated** folder within a subfolder folder named after the equipment, for example, **/Unallocated/CICM123**.

If an equipment mapping is changed after an initial import, the importer moves existing items to a new folder based on the logic above in the following scenarios:

- If an item is currently in the equipment's **/Unallocated** folder.
- If an item's location is no longer synchronized with its remote tenant ownership. See section 2.1.3.4 "Importing Remote Ownership Changes" for details.

2.1.3.2 Equipment Mappings and the User Interface

Using a combination of a user's security permissions and the equipment mappings, it can be determined which remote equipment the user has the right to access. This is applied when the equipment is listed in the Unified CCDM web application for example, on the person dimension edit screen and phone creation screen (Unified Communications Manager drop-down list).

The user has the right to view equipment if there is an equipment mapping to any tenant that contains any folder that the user has permission to view. For example, if there was a tenant: **/t1** and the user had the right to see folder **/t1/folder1** and there was an equipment mapping to **/t1/folder2** then the user has right to view the equipment. The user also has the right to view equipment which only has equipment mappings to folders outside of tenants.

For more information on moving resources through the Unified CCDM web application please refer to the *User Guide for Cisco Unified Contact Center Domain Manager*.

Resource Ownership Principles

Resources in Unified CCDM are owned by tenants. This section describes how this ownership is managed and the implications of item ownership on the importer.

Unified CCDM Tenant Ownership

Unified CCDM tenant folders contain the items which they own. Moving an item to another tenant folder automatically changes its owner. Items located outside the tenant folders are not owned by a specific tenant. Depending on the security settings, these items can be shared between tenants or hidden from all tenants.

Remote Tenant Ownership

Some Unified CCE items also have an additional level of ownership on the Unified CCE instance. The Unified CCE equivalent of a tenant is a *customer definition*, which can be associated with the following items:

- dialed numbers
- call types
- labels
- network VRU scripts
- scheduled targets
- routing scripts.

These items are therefore capable of being owned by both a Unified CCDM tenant and a remote (Unified CCE) tenant.

Remote Tenant Mappings

Unified CCDM automatically determines which items belong to which remote tenant based on their location in the folder tree. An item which is located anywhere under a folder mapped to a remote tenant will be associated with and owned by that remote tenant.

The remote tenant mappings control two Unified CCDM behaviors:

- The folder that remote tenant owned items are placed in by the importer.
- How the remote tenant ownership changes when a remote tenant owned item is moved through Unified CCDM.

Remote tenants are mapped to folders from the **Equipment Mappings** page (see section 2.6 "Equipment Mappings Page".

Changing the Ownership of an Item

An item's ownership can be changed in any of the following ways:

- moving the item or the folder containing the item to a different Unified CCDM tenant
- moving an item capable of being owned by a remote tenant to a folder located under a different remote tenant mapping.
- changing the remote tenant mapping of an item on the remote equipment (for example, Unified CCE).

2.1.3.3 Changing Ownership by Moving Items

Since the ownership of items is governed by where it is located in the folder tree, moving an item can result in a change of remote or Unified CCDM tenant ownership.

The ownership of an item is calculated from the closest remote tenant mapping above the item in the folder tree. If moving an item changes this mapping, the remote tenant ownership is updated and the change is provisioned to the remote equipment.

A change of remote tenant mapping during a move is not allowed if the item is referenced by a customer specific Unified CCE routing script or has a membership to any other items which also have a remote tenant mapping. For example, the user cannot move a label out of a folder which has a remote tenant mapping if it is referenced by a script which has a remote tenant association. To move the label, it must first be removed from the script or alternatively the script should be made visible to all customers using the Unified CCE Script Editor.

Provisioning of scheduled targets is not supported, so any move which requires a change of remote tenant will not be allowed. Likewise if script provisioning is disabled for the Unified CCE, any move of a routing script that requires a change of remote tenant will not be allowed.

Items owned by remote tenants for which there are no remote tenant mappings will not have their remote ownership changed unless they are moved into a folder with a different remote tenant mapping.

2.1.3.4 Importing Remote Ownership Changes

The Data Import service ensures that any remote tenant owned items are correctly located in the folder tree according to the configured remote tenant mappings. If a remote tenant owned item has no corresponding remote tenant mapping, it will be placed in the default import location. If the remote tenant of an item is changed on the Unified CCE the importer will move the item according to the defined remote tenant mappings so that the item's folder location continues to reflect the correct remote tenant ownership.

2.2 Cluster Configuration Tool Reference

2.2.1 Cluster Configuration Actions

The ICE Cluster Configuration tool supports the following ICE actions:

Icon	Action	Description
	Save	Save any changes to the currently loaded configuration.
	Undo	Undo the last change made to the configuration.
	Redo	Redo the last change made to the configuration

The ICE Cluster Configuration tool also has the following additional actions:

Icon	Action	Description
	Save As	
	Save As Database	Save the currently open configuration to a database
	Save As File	Save the currently open configuration to an XML file
	Refresh	Refresh the configuration from the current connection (database or file)

Icon	Action	Description
	Validate	Validate the current configuration, and display any validation errors in the Error List pane. **Note**: Validate does not check connection errors, although the Error List pane does include connection errors at startup. If any connection errors were shown in the Error List pane, they will be cleared when you select Validate.
	Open	
	Open Database	Open configuration from a database
	Open File	Open configuration from an XML file
	Create Checkpoint	Create a checkpoint in the current configuration. Allows all changes from a given point to be easily reverted.
	Revert To Last Checkpoint	Revert the state of the configuration to the last checkpoint, reverting and clearing all changes since the checkpoint.

2.2.2 Cluster Configuration Preferences

The ICE Cluster Configuration tool has the following additional preferences:

Preference Name	Description
General: Advanced Mode	Indicates if the current user should be shown advanced properties on the cluster configuration objects within the user interface. This option is not required for day-to-day operations.
General: Connection Monitor Refresh Period	Indicates the rate in seconds at which the connection monitoring system will check the backing store for connection state changes. Default is 5 seconds.

The preferences configuration pane is shown in Figure 2.1 "Cluster Configuration General Preferences User Interface" below.
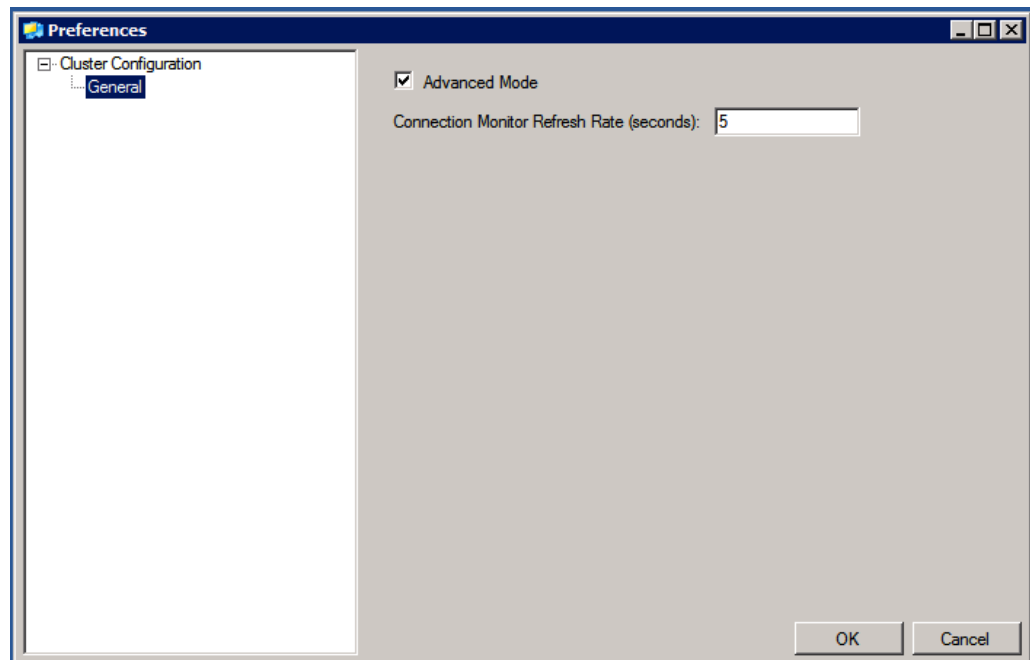
**Figure 2.1   Cluster Configuration General Preferences User
Interface**

2.2.3   Cluster Configuration Filters

Some of the Cluster Configuration pages support a filter function to limit the
number of items shown according to a user-specified filter. To access the filter,
where available, click **Show Filter** (🌐).

The actual filters that you can specify depend on the Cluster Configuration page.
Within the filter area, click **Clear Filter** (❌) to clear any filters you have
specified and click **Hide Filter** (🔵) to hide the filter options.

The following Cluster Configuration pages support a filter:

- Servers page
- Connections page
- Resources page.

2.2.4   Cluster Configuration User Interface

When you run the Cluster Configuration tool for the first time you are
automatically connected to a model using the shared Unified CCDM relational
database connection. You are prompted for credentials to connect to the Unified

CCDM relational database.

Once connected, you will see the initial screen shown in Figure 2.2 "Cluster Configuration Initial Interface".
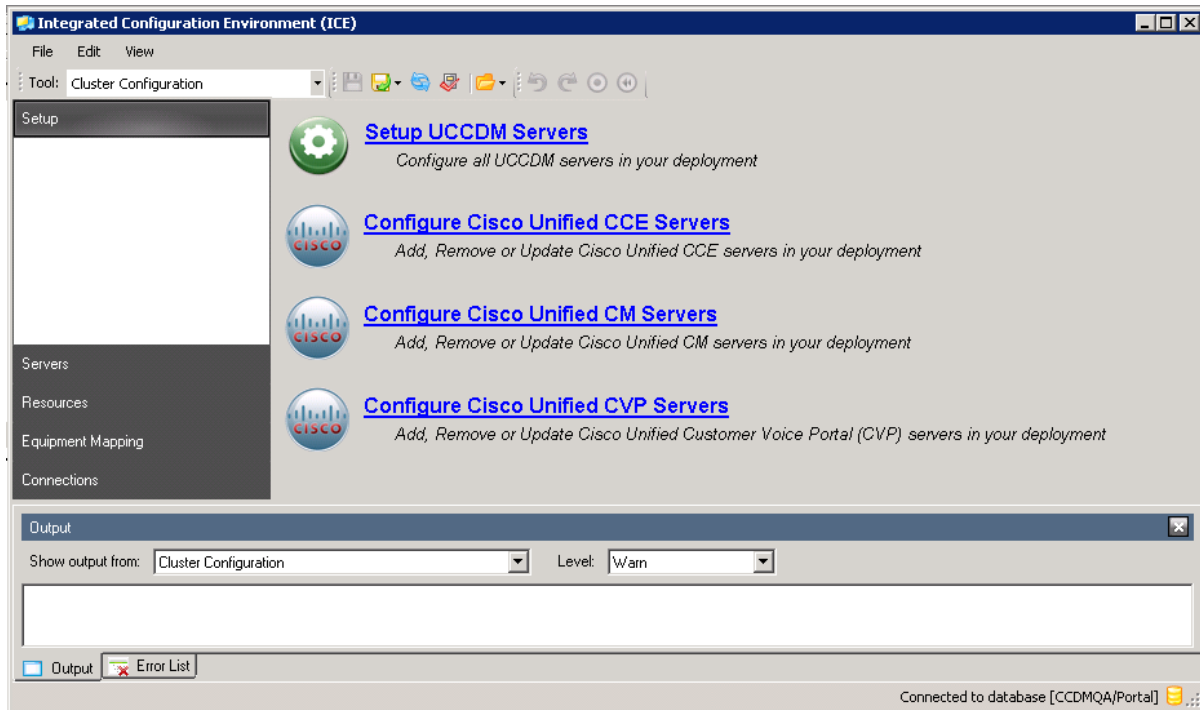
Figure 2.2   Cluster Configuration Initial Interface

On the left hand side of the main interface there is a navigation menu that allows easy switching between the various configuration pages within the tool. These configuration pages include:

- **Setup**. Contains high-level wizards that are designed to make day-to-day configuration changes quick and easy.

- **Servers**. Allows physical servers within the model to be added, removed or updated.

- **Resources**. Shows the logical resources, physical resources, and physical resource components configured within the model. These items can be added, removed, or updated here.

- **Equipment Mapping**. Only enabled when connected to a Unified CCDM database. Allows you to create tenants and folders in Unified CCDM and to map equipment like Unified CCE systems to folders for import and provisioning.

- **Connections**. Allows Unified CCDM component connections to be viewed and edited.

2.2.5   Cluster Configuration Error List Pane

The Cluster Configuration has an additional output pane, the Error List pane (see Figure 2.3 "The Cluster Configuration Error List Pane"). Click the **Error List** tab to view the errors and warnings from Cluster Configuration tool. You can click on the error details to see more information about an error.

Initially, this pane shows the connection errors and warnings (if any) and validation errors and warnings (if any) that were detected at start-up. Click **Save** or **Validate** to update the contents of the Error List pane with the current validation errors and warnings.

> **Note**
>
> When you click Save or Validate, any connection errors and warnings are cleared from the Error List pane. You can view connection problems at any time on the Connections page (see section 2.7 "Connections Page").

You can click on the buttons at the top of the error pane to choose the type of error you want view. In the example in Figure 2.3 "The Cluster Configuration Error List Pane", errors and warnings have been selected for display, but messages have not been selected for display.

See section 1.2.5 "ICE Output Pane" for general information about showing and hiding output panes.
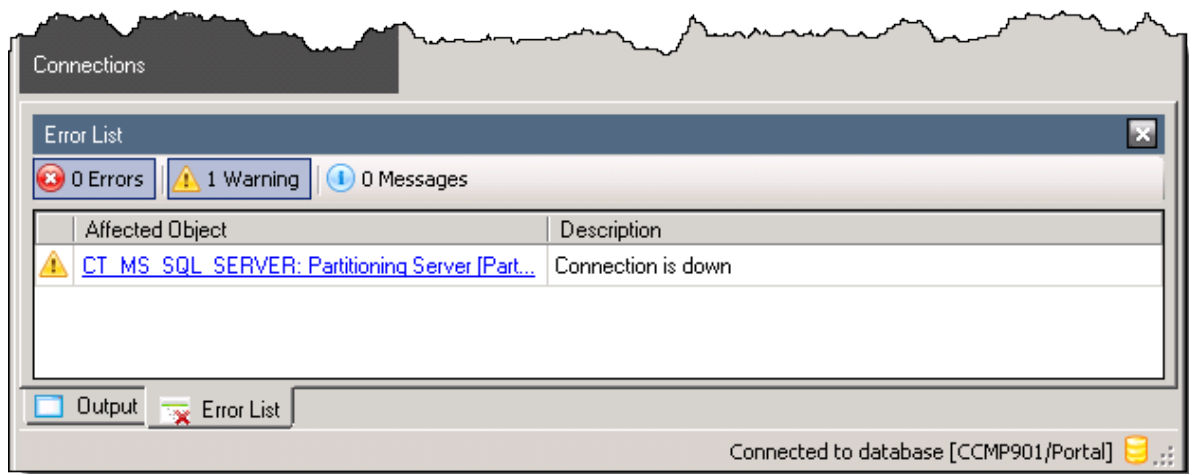
Figure 2.3   The Cluster Configuration Error List Pane

2.3 Setup Page

For information about the Setup page in the Cluster Configuration tool, see the *Installation and Configuration Guide for Cisco Unified Contact Center Domain Manager*, Unified CCDM Component Configuration chapter, Configuring the Unified CCDM Clusters section, Server Setup subsection.

2.4 Servers Page

The Servers page within the Cluster Configuration tool allows physical servers within the Unified CCDM deployment to be added, removed or updated.

The Servers page is shown in Figure 2.4 "Cluster Configuration Servers Page".
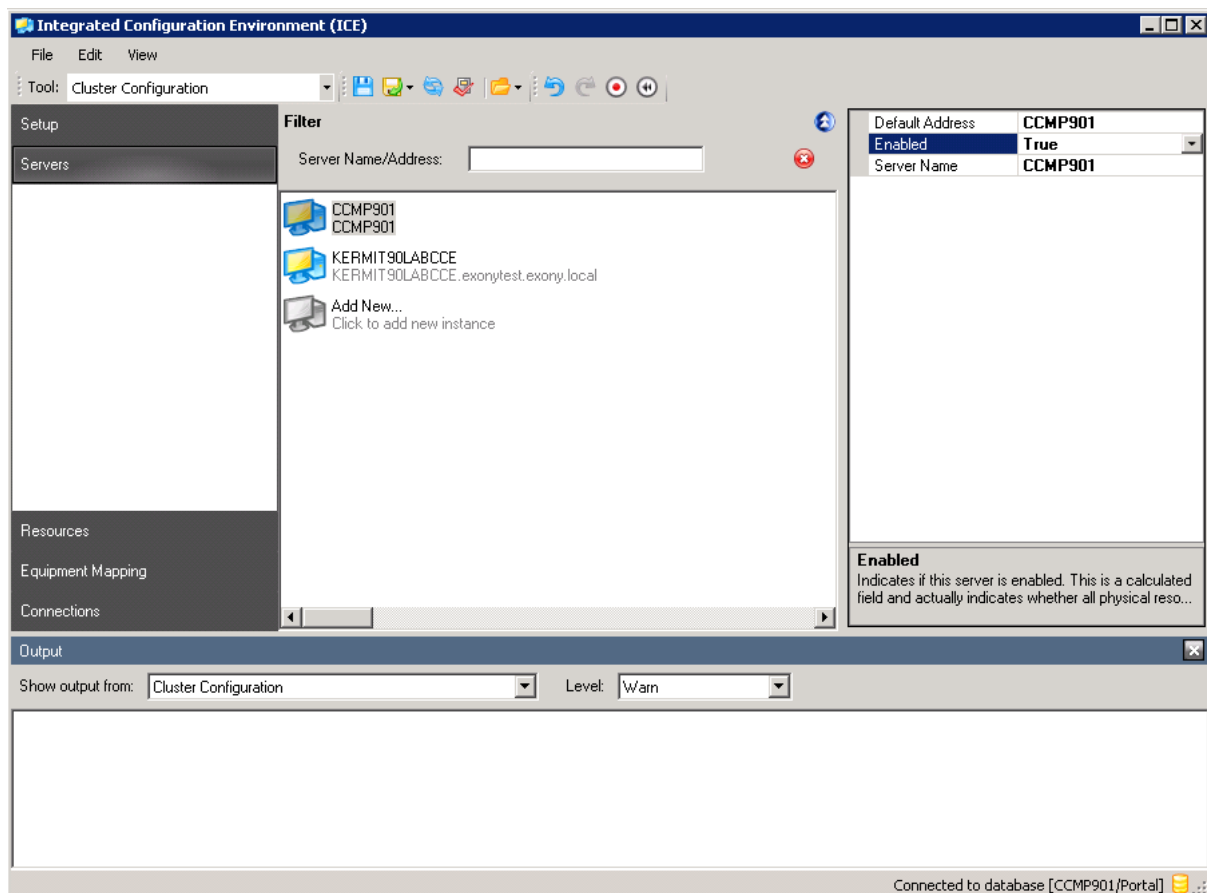
Figure 2.4   Cluster Configuration Servers Page

- The Servers page consists of a left and right pane. The left hand pane contains a list view displaying all of the servers configured in the open model. The right hand pane is a property grid that displays the details of the currently selected server within the list view.

- Server objects support the following properties:

Property Name	Advanced	Description
Default Address		The default address that will be used when services within the Unified CCDM deployment connect to this server. This may be a host name or IP address.
Display Name	P	A name used to represent this object when it is referred to in logs, performance counters etc.
Enabled		Indicates if this server is enabled. This is a calculated field and actually indicates whether all physical resource components on this server are enabled. Changing this value will update the enabled flag of all physical resource components on this server.
Id	P	A unique ID used to represent this object on the backing store.
Server Name		The machine name for this server. This is used to identify a Unified CCDM service's machine within the cluster model and should match the value returned by SQL server using @@SERVERNAME or SYSTEMPROPERTY ('MachineName'). Viewing Computer properties on a Windows based computer and looking at the "Computer Name" property can typically find the correct value.
System	P	Indicates if the Unified CCDM system installers created this object.

Click **Add New** within the list view to add a new server to the model . Clicking this will automatically create a new server in the model and select it ready for editing.

- Right-click in the Servers page to see a shortcut menu with the following functions:

Icon	Action	Description
	Add Server	Add a new server to the model.
	Remove Server	Remove the selected server from the model.
	View	Change the display style of the list view.

The Servers page includes a filter which allows you to filter by server name or address. Click **Show Filter** ( ) to expand the filter area if it is not currently shown.

2.5   Resources Page

The Resources page within the Cluster Configuration tool allows logical resources, physical resources, and physical resource components within the model to be added, removed or edited.
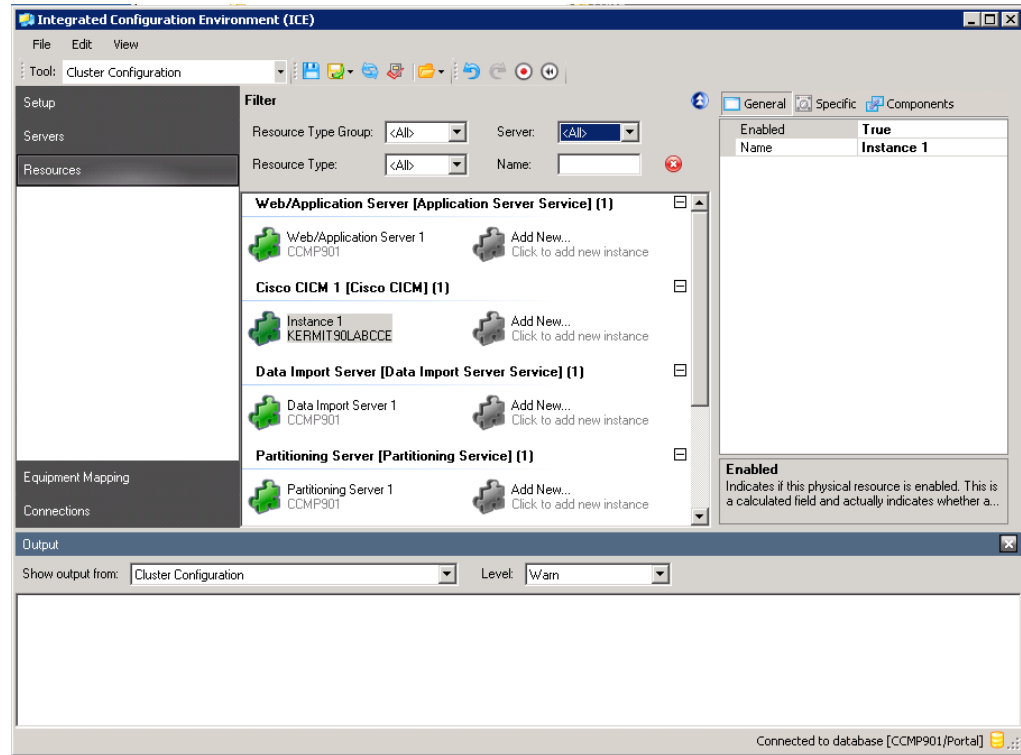
Figure 2.5   Cluster Configuration Resources Page

- The Resources page consists of a left and right pane, very similar to the layout of the Servers page. The left hand pane contains a list view displaying all of the logical and physical resources configured in the open model. The right hand pane is a property grid that displays the details of the currently selected object within the list view.

The Resources page includes a filter which allows you to filter by resource group type, resource type, server or resource name. Click **Show Filter** (![icon]) to expand the filter area if it is not currently shown.

- The list view on the Resource page contains multiple groups. Each group represents an individual logical resource within the model. Within each group there will be one or more items, each representing a physical resource within that logical resource. This structure is highlighted in Figure 2.6 "Example Logical Resource List View Group".

Figure 2.6   Example Logical Resource List View Group

2.5.1   Logical Resources

You can select an logical resource by clicking on the group header text (for example, the text: **Provisioning Server [Provisioning Service] (2)** in the example of Figure 2.6 "Example Logical Resource List View Group"). Selecting a logical resource displays its properties in the property grid pane, as shown in Figure 2.7 "Property Grid View for Logical Resource".
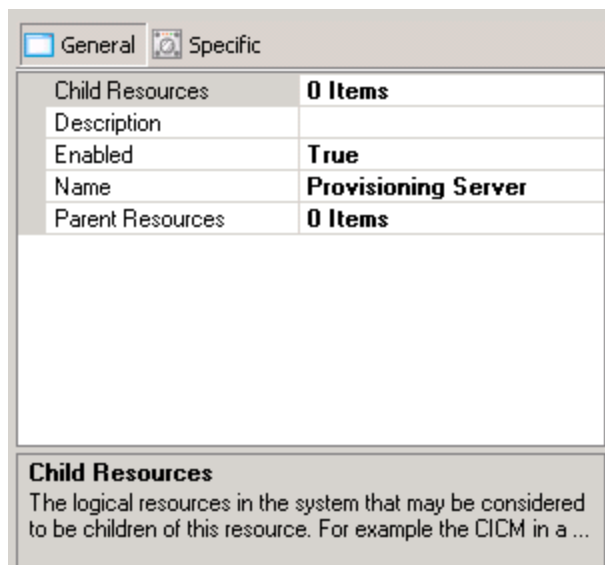
Figure 2.7   Property Grid View for Logical Resource

The property grid for a logical resource has two tabbed sections; General and Specific. The General tab contains properties that are common to several logical resources. The Specific tab contains properties that relate to the specific type of logical resource that has been selected.

2.5.2 Properties of Logical Resources

Logical resource objects may support the following basic properties (through the General tab):

Property Name	Advanced	Description
Cache Enabled Resource Types		The resource types that will be cached by this server to enhance performance (applies to App/Web server only).
Child Resources		The logical resources in the system that are children of this resource.
Default Import Enabled Resource Types		The resource types that will be imported by default. This can be overridden on a specific item of remote equipment if required (applies to Data Import Server only).
Description		A short description of the logical resource.
Display Name	P	A name used to represent this object when it is referred to in logs, performance counters etc. (Read-only)
Enabled		Indicates if this logical resource is enabled. This is a calculated field and actually indicates whether all physical resources in this logical resource are enabled. Changing this value will update the enabled flag of all physical resources in this logical resource.
Id	P	A unique ID used to represent this object on the backing store. Read only.
Import Enabled Resource Types		The resource types that will be imported from this item of remote equipment (applies to remote equipment objects only). The settings here override the settings in Default Import Enabled Resource Types. When a default setting is overridden for a resource type, that resource type is shown in bold.
Name		A unique name for this logical resource.
Parent Resources		The logical resources in the system that may be considered to be parents of this resource.
Provisionable		Whether provisioning has been enabled for this logical resource (applies to remote equipment only).

Property Name	Advanced	Description
System	P	Whether this object was created by the system installers. Read only.
Version	P	The source system version for this logical resource.

The derived logical resource properties for the standard built in resource types are as follows:

Cisco CICM

Property Name	Advanced	Description
Active Directory Path		The active directory location from which users can be selected to provide supervisors with WebView login credentials. (Only shown if a ConAPI component is configured for the physical resource)
Deployment Type		The deployment type for this CICM.
Domain Password		The password to use when connecting to active directory if "Secure Authentication" has been specified. (Only shown if a ConAPI component is configured for the physical resource)
Domain User Name		The user to impersonate when connecting to active directory if "Secure Authentication" has been specified. (Only shown if a ConAPI component is configured for the physical resource)
Last Dimension Import Config Change Date	P	The value of the `ControllerConfigChangeTime` field in the `AWControl` table on the AW the last time a dimension import ran for this resource. (Read-only)
Last Member Import Config Change Date	P	The value of the `ControllerConfigChangeTime` field in the `AWControl` table on the AW the last time a member import ran for this resource. (Read-only)
Multi Media Enabled		Indicates if multimedia reskilling is supported for this CICM. (Only shown if a ConAPI component is configured for the physical resource)
Person Minimum Password Length		The minimum password length configured for this ICM. (Read-only)
Primary Domain Server		Primary domain server for active directory access. (Only shown if a ConAPI component is configured for the physical resource)
Purge Items on Delete		Indicates if items should be automatically purged on delete (or only marked for delete) on ICM. (Only shown if a ConAPI component is configured for the physical resource)

Property Name	Advanced	Description
Script Lock User Name		User name for use when locking routing scripts for edit. (Only shown if a ConAPI component is configured for the physical resource)
Script Provisioning Enabled		Indicates if script provisioning is enabled for this ConAPI resource. (Only shown if a ConAPI component is configured for the physical resource)
Secondary Domain Server		Secondary domain server for active directory access. (Only shown if a ConAPI component is configured for the physical resource)
Secure Authentication		Indicates whether a specific user should be impersonated when contacting to active directory. (Only shown if a ConAPI component is configured for the physical resource)
Time Zone		The timezone for the ICM.
Time Zone Display Name		Display name for the ICM timezone. (Read-only)

Data Import Server Service

Property Name	Advanced	Description
Import Cycle Delay	P	The minimum delay between import cycles (in minutes).

2.5.3　　Physical Resources

You can select an individual physical resource by clicking on physical resource in the list view (for example, the text: **Provisioning Server 2** in the example of Figure 2.6 "Example Logical Resource List View Group"). Selecting a physical resource displays its properties in the right hand property grid pane, as shown in Figure 2.8 "Property Grid View for Physical Resource".
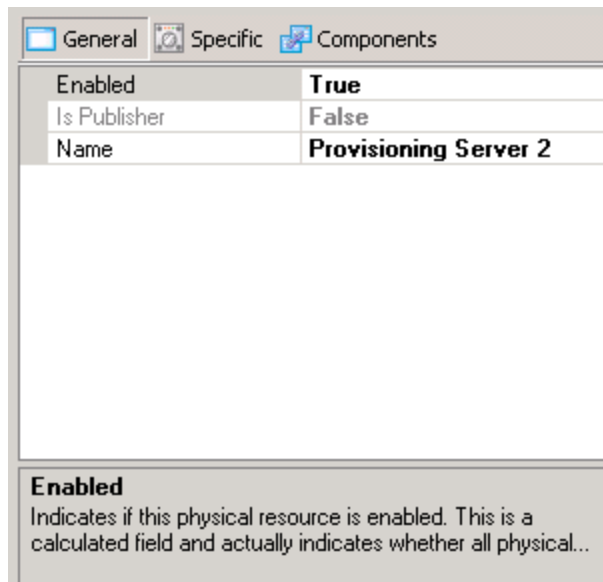
Figure 2.8   Property Grid View for Physical Resource

The property grid for a physical resource is broken into three tabbed sections; General, Specific, and Components. The General tab contains properties that are common to all physical resources. The Specific tab contains properties that relate to the specific type of physical resource that has been selected. The Components tab displays details for each of the physical resource components associated with the currently selected physical resource.

2.5.4   Properties of Physical Resource Objects

Physical resource objects support the following basic properties (through the General tab):

Property Name	Advanced	Description
Display Name	P	A name used to represent this object when it is referred to in logs, performance counters etc. (Read-only)
Enabled		Indicates if this physical resource is enabled. This is a calculated field and actually indicates whether all physical resource components in this physical resource are enabled. Changing this value will update the enabled flag of all physical resource components in this physical resource.
Id	P	A unique ID used to represent this object on the backing store. (Read-only)

Property Name	Advanced	Description
Is Publisher		Indicates if this physical resource is considered a publisher for replication within the logical resource.
Name		A unique name for this physical resource.
System	P	Indicates whether this object was created by the system installers (read-only).

Derived, resource type specific properties are exposed through the Specific tab of the property grid. The derived physical resource properties for the standard built in resource types are as follows:

Application Server Service

Property Name	Advanced	Description
Notification Enabled		Indicates if this application server is responsible for raising resource notification events.

Data Import Server Service

Property Name	Advanced	Description
Last Import End	P	The time when the last dimension import cycle ended. (Read-only)
Last Import Exception Count	P	The number of errors that occurred on the last import cycle. (Read-only)
Last Import Start	P	The time when the last dimension import cycle started. (Read-only)
Last Import Type	P	The type of the last import cycle. (Read-only)

Relational Database

Property Name	Advanced	Description
Prefix Management Enabled		Whether this database server is responsible for running the prefix management scheduled job.
Purge Enabled		Whether this database server is responsible for running the purge scheduled job.
Scheduling Enabled		Unused.

The Components tab on the property grid displays the properties for all physical resource components that belong to the selected physical resource.

The following table lists the component types supported and required for each of the built-in physical resource types:

Physical Resource Type	Component Type	Required	Description
Application Server Service	Default	P	
Cisco Call Manager	Default	P	
Cisco CICM	AWS	P	The Admin Workstation component. Used for dimension/member import.
	ConAPI		The Cisco ConAPI server. Used for provisioning changes to CCE.
Cisco CVP Call Server	Default	P	
Data Import Server Service	Default	P	
Partitioning Service	Default	P	
Provisioning Service	Default	P	
Relational Database	Default	P	

2.5.5 Properties of Physical Resource Components

All physical resource components support the following properties:

Property Name	Advanced	Description
Application Name	P	Application name used for this component when it is the source of a SQL connection. Can be used to identifier this resource in a SQL profile. (Read-only)
Display Name	P	A name used to represent this object when it is referred to in logs, performance counters etc. (Read-only)
Id	P	A unique ID used to represent this object on the backing store. (Read-only)

Property Name	Advanced	Description
Inbound Connections		All connections to this component from other systems.
Outbound Connections		All connections from this component to other systems.
Server		The server on which this component resides.
System		Indicates whether this object was created by the system installers (read-only).

In addition, the following derived properties are supported:

Cisco CICM: AWS

Property Name	Advanced	Description
Catalog		The database catalog name.
Custom Connection Test	P	SQL query containing custom connection test logic for this component. The query should return a single row with a BIT column indicating the state of the component.

Provisioning Service: Default

Property Name	Advanced	Description
Additional Java Virtual Machine Options		All additional options that should be passed to the hosted Java Virtual Machine. The -Xrs option will be automatically passed in and does not need to be specified here.
Java Debug Port Number		The port number to use for connecting the remote debugger when Java debugging is enabled.
Java Debugging Enabled		Enable or disable debugging support in the hosted Java Virtual Machine.
Java RMI Server Hostname		The value of this property represents the host name string that should be associated with remote stubs for locally created remote objects, in order to allow clients to invoke methods on the remote object.

Relational Database: Default

Property Name	Advanced	Description
Catalog		The database catalog name.
Custom Connection Test	P	SQL query containing custom connection test logic for this component. The query should return a single row with a BIT column indicating the state of the component.

Logical resources, physical resources and physical resource components may be added/removed from the model via a context menu that can be accessed by right-clicking on the main list view area.

2.5.6   Connections

Connections can be created between two physical resource components within the cluster configuration model. Components may support inbound connections (that is other components may connect to them), outbound connections (that is, they can connect to other components) or both inbound and outbound connections. Each physical resource component type has a connection type associated with it that defines how other components should connect with it.

Unified CCDM supports the following connection types:

Connection Type	Description
Cisco ConAPI	Provides support for connections to a Cisco CMS JServer using the ConAPI Java RMI layer.
Microsoft SQL Server	Provides support for connections to a Microsoft SQL Server database.
Web Service	Provides support for connections to a web service endpoint.

Connections can be added, removed or updated by clicking on the "Inbound Connections" or "Outbound Connections" property on a component entry in the property grid. To edit connections from the selected component to other components use the "Outbound Connections" property. To edit connections to the selected component from other components use the "Inbound Connections" property. These properties are only visible on components where connections are supported.

For example, to edit outbound connections for a provisioning server:

1.   In the list view, select the required provisioning server.

2.   In the property grid pane, click on the **Components** tab.

3.   Click on the **Outbound Connections** property (see Figure 2.9 "Example
      Connection Editing").
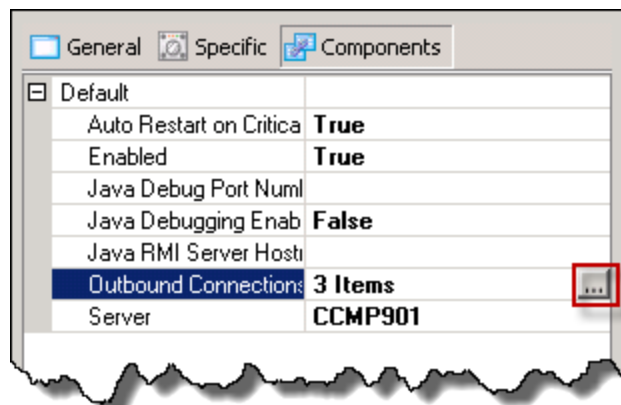
Figure 2.9   Example Connection Editing

4.   Click on the ellipsis beside the Outbound Connections property. This displays
      the Manage Outbound Connections From dialog box, as shown in Figure 2.10
      "Manage Outbound Connections Dialog Box".
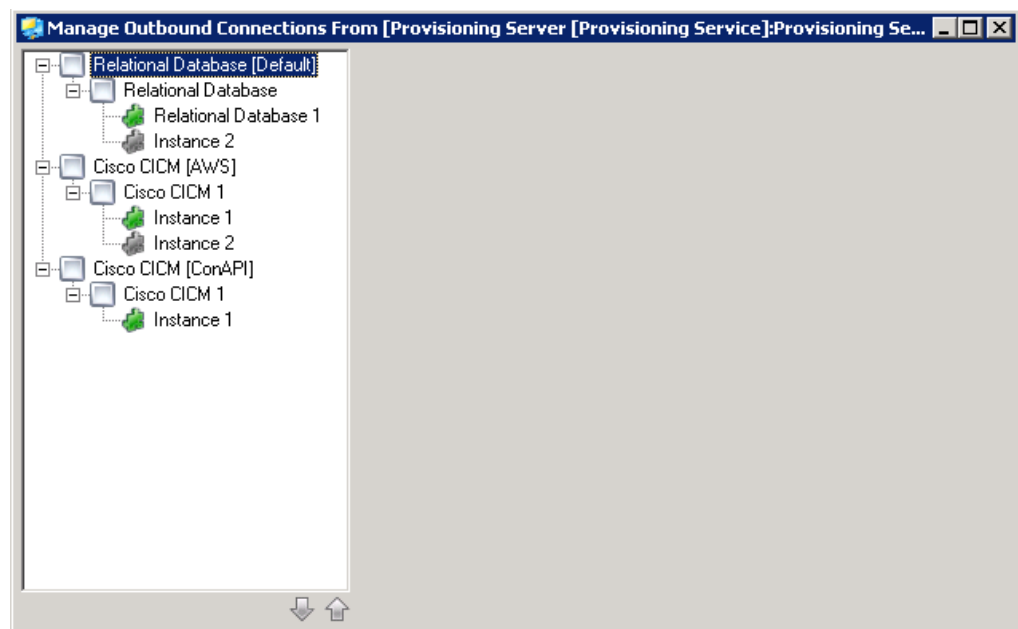
Figure 2.10   Manage Outbound Connections Dialog Box

The Manage Outbound Connections dialog box has two main panes. The left hand pane contains a tree view showing all the components that are available to connect to or from. The tree view groups all the available components by physical component type and logical resource. An example of this is shown in Figure 2.11 "Connection Edit Dialog Tree View".
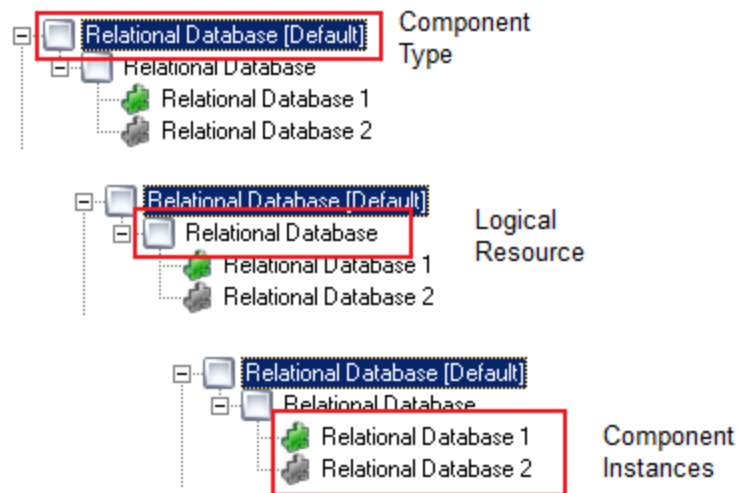
Figure 2.11   Connection Edit Dialog Tree View

When a connection exists to a component instance, the icon on the component is highlighted in green. When no connection exists, the icon is grayed out.

Within each logical resource grouping, the component instances in the logical resource are listed in order of *cost*. The cost of a connection is an indication of the resources it has available to it and how well it will perform – connections with a lower cost can be expected to perform better than connections with a higher cost. For example, it may be more efficient to make a connection to a server that is co-located with the server requesting the connection than to make a connection to a server in another country. In this case, you would define the local server as having a lower cost than the server in another country.

Unified CCDM will use the lower cost connection if it is available. For example, if a Provisioning server was connected to a dual sided database then one of the two sides would be the preferred (lowest cost) connection and the other would be the redundant (highest cost) connection.

To change the relative cost of connections, select a component in the tree view and click the up or down arrow at the bottom right of the pane to reduce or increase the cost, as shown in Figure 2.12 "Changing the Relative Cost of Connections".
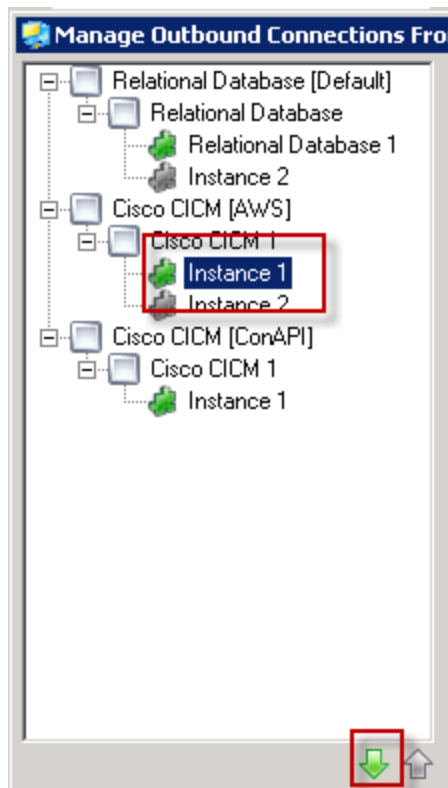
Figure 2.12   Changing the Relative Cost of Connections

When a component is selected in the tree view, the right hand pane will automatically populate with the details for the connection. The connection details pane is broken into three sections; a common header, a connection type specific properties page and a generic footer. An example for a SQL connection is shown in Figure 2.13 "Connection Details Pane".
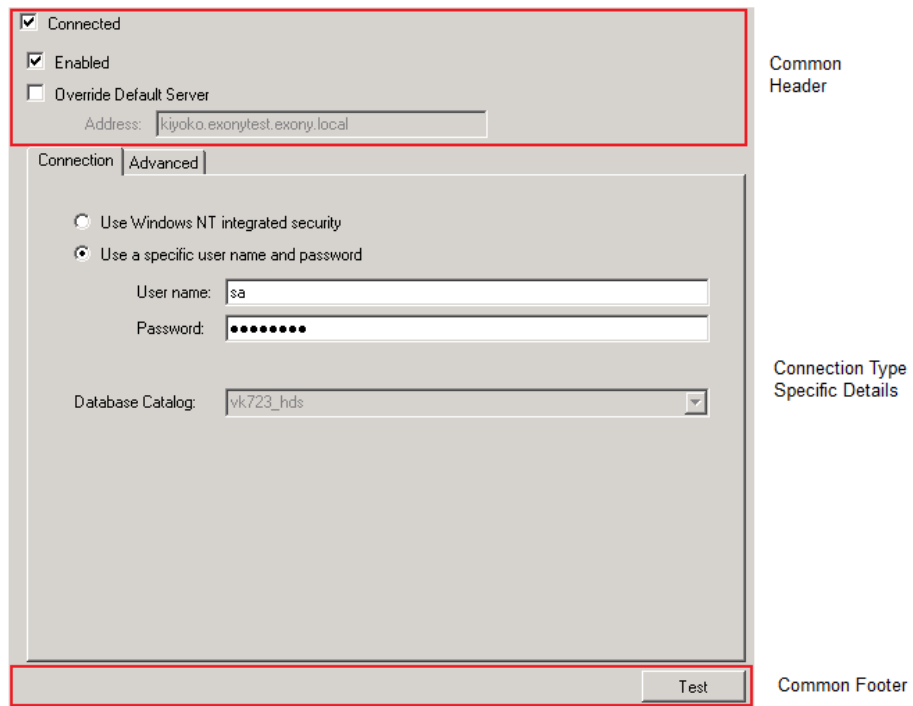
Figure 2.13   Connection Details Pane

The common header consists of the following:

Column	Meaning
Connected	Indicates if a connection exists to the selected component. Checking this box creates a connection. Clearing this box deletes the connection.
Enabled	Indicates if this connection is enabled. Disabled connections will not be used by the Unified CCDM monitoring service.
Override Default Server	By default, the host name for the server on which component resides will be selected from the server objects Default Address property. However, there may be situations where the actual host name used for a specific connection between two components needs to be altered (for example when using network address translation). In these situations, the host name can be set by checking the Override Default Server box and entering the new host name in the Address field.

The middle pane contains connection type specific properties. For example, when editing a SQL connection this pane contains settings for the authentication mode and database catalog etc. For web service connections on the other hand it will prompt for a URL.

The common footer contains a single Test button. Clicking this button will test the connection using the details provided in the details section.

> **Note**
>
> Connections are tested within the context of the ICE application so tests may provide inaccurate results. When the connections are used by the Unified CCDM system they will be created on remote servers and subject to any firewalls, network address translation or environment issues that may exist on those servers. The connections will also be established using the windows credentials of the service rather than the credentials being used to run the ICE application.

2.6 Equipment Mappings Page

The Equipment Mapping tab of the ICE Cluster Configuration tool allows you to create Unified CCDM tenants and folders, and to specify the way that resources on the contact center are mapped to Unified CCDM.

The Equipment Mappings page is divided into three vertical sections.

- Folder Tree section
- Source Equipment section (shown when an item is selected in the folder tree)
- Association Options section (shown when an item is ticked and highlighted in the source equipment section).

To configure your equipment mapping, in the Cluster Configuration tool, select **Equipment Mapping** in the left hand navigation pane.

Folder Tree Section

This section allows you to create new tenants and folders in the Unified CCDM Folder Structure. To create a new tenant or a folder, right click on the location in the tree where you would like to create the item and select **Add Tenant** or **Add Folder**.

> **Note**
>
> Tenants can only be created under the root folder. Folders can be created anywhere in the tree. A Tenant is a special folder that maintains ownership of an item. For example, in a hosted environment, the host's customers map directly to individual tenants, each of which is assigned their own individual resources, for example, Agents, Teams, Call Types etc.

Right clicking and selecting the **Refresh** option will refresh the folder structure from the database, reflecting any changes that may have been made through the Unified CCDM web application.

Source Equipment Section

This section lists all the configured source equipment. If none are configured then this list will be empty and you will not be able to do any associations.

When you select one of the items of configured equipment in the list, you will see options to map the resources belonging to that equipment to the selected folder in the **Association Options Section**.

Association Options Section

This section offers a list of association options between the folder or tenant in the folder tree and the source equipment. There are two types of association options.

- Default Import Location. All resources from the highlighted contact center equipment will be imported into the selected folder or tenant in Unified CCDM.

- **Customer Resource Mapping**. Allows more control over the import process. You can specify the items on the highlighted contact center equipment to be placed in the selected folder or tenant in Unified CCDM. If you select this option you can:

    - Click to add a new customer resource mapping that defines the resource types and the specific resources of that type to be mapped to the selected import location. Select the resource type from the Type drop-down list (one of Peripheral, Routing Client, Media Routing Domain and Remote Tenant) then select the specific item of that type that you want to map from the Resource drop-down list. Click **OK**. Repeat to map other customer resources on this item of contact center equipment to the specified import location.

    - Click to delete an existing customer resource mapping.

If **Customer Resource Mapping** is selected then any resources on the contact center equipment that are not associated with the selected mapping will be placed in the source equipment subfolder under the Unallocated folder.

> **Note**
>
> If you want to use the customer resource mapping option, you will not be able to configure this until you have imported the customer resources you want to use to define the mappings.

In this case, for the first import, **do not** select the Default Import Location option, as once you have selected this, the items from the remote equipment will be imported to that location and cannot be re-imported. Instead, for the first import, **do not specify any import location**, so everything is imported into the **/Unallocated** folder. Once the customer resources have been imported, you can specify the customer resource mapping you require, and the items in the **/Unallocated** folder will be moved to the required locations.

Note

The **Customer Resource** Mapping is currently only valid for Cisco Unified CCE Resources. The list is populated with all the customer definitions available on the selected Cisco Unified CCE resource.

When you have completed your changes to equipment mappings, click the **Save** icon in the toolbar to save your changes.

2.7   Connections Page

The Connections page within the Cluster Configuration tool allows all configured connections in the system to be edited and monitored.

The Connections page is shown in Figure 2.14 "Cluster Configuration Connections Page".
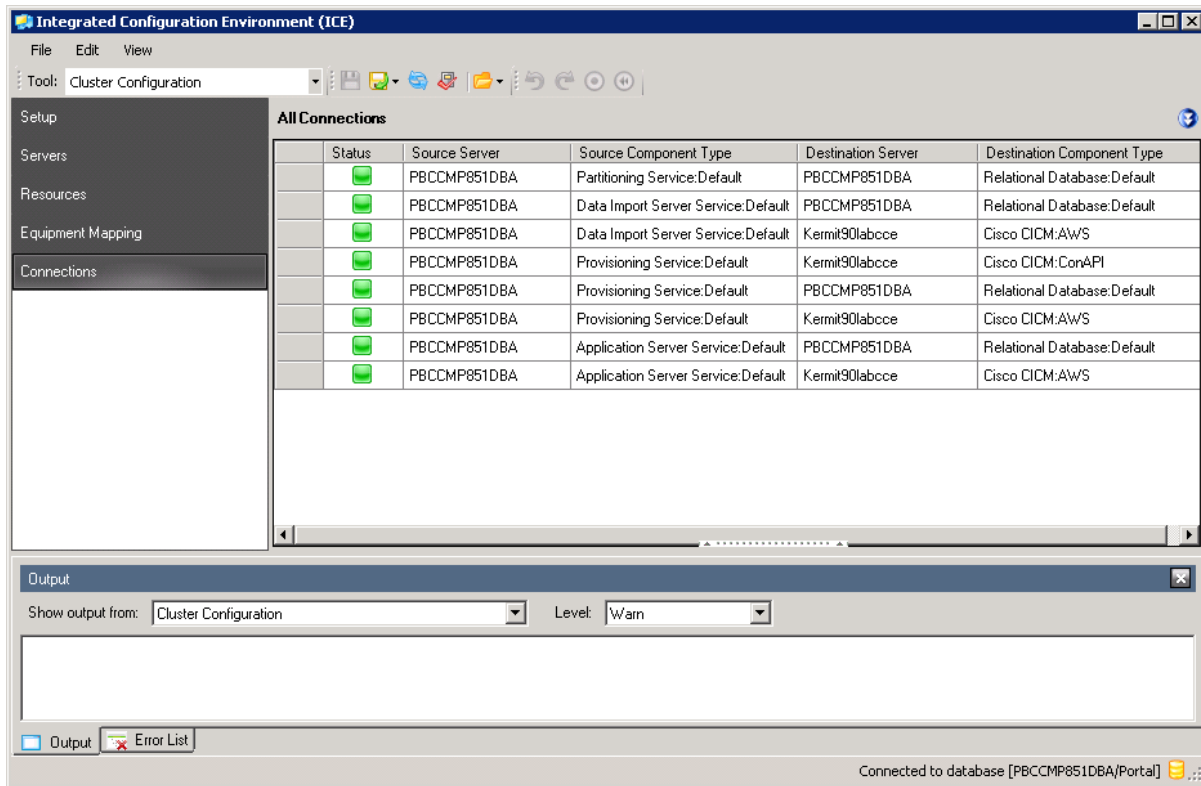
Figure 2.14   Cluster Configuration Connections Page

The Connections page consists of a resizable top and bottom pane. The top pane is the connection status monitor and shows the status of all the connections configured in the open model. The bottom pane displays the details for the currently selected connection in the list view.

Each row in the connection status monitor has the following columns:

Column	Meaning
Status	An icon representing the status of the connection. The following options exist: 🟩 Available 🟥 Unavailable ⬜ Disabled
Source Server	The name of the physical server that this connection is being established from.

Column	Meaning
Source Component Type	The display name for the physical resource component type that this connection is being established from.
Destination Server	The name of the physical server that this connection is being established to.
Destination Component Type	The display name for the physical resource component type that this connection is being established to.

Click the column headers in the connection status grid to sort the view by the selected column. Click on an entry in the grid (a source or destination server, or a source or destination component type) to go to the details for that item.

The row headers on the connection status grid may optionally show an alert icon (❗) if there is a potential problem with the connection. Hovering over the alert icon will display a tool tip explaining the reason for the alert. The most common cause of an alert being displayed is to indicate that the connection status has not been updated for more than 5 minutes. This usually indicates that the source service is not running or is failing to connect with the Unified CCDM database. The source service log files should be used to investigate the cause of the problem.

To show the server details for a particular connection, hold down **Ctrl** and click on the connection.

To maximize the status monitor and show the Details and History tabs, click on the expand icon on the splitter bar (see Figure 2.15 "Connection Monitor Full Screen Mode").
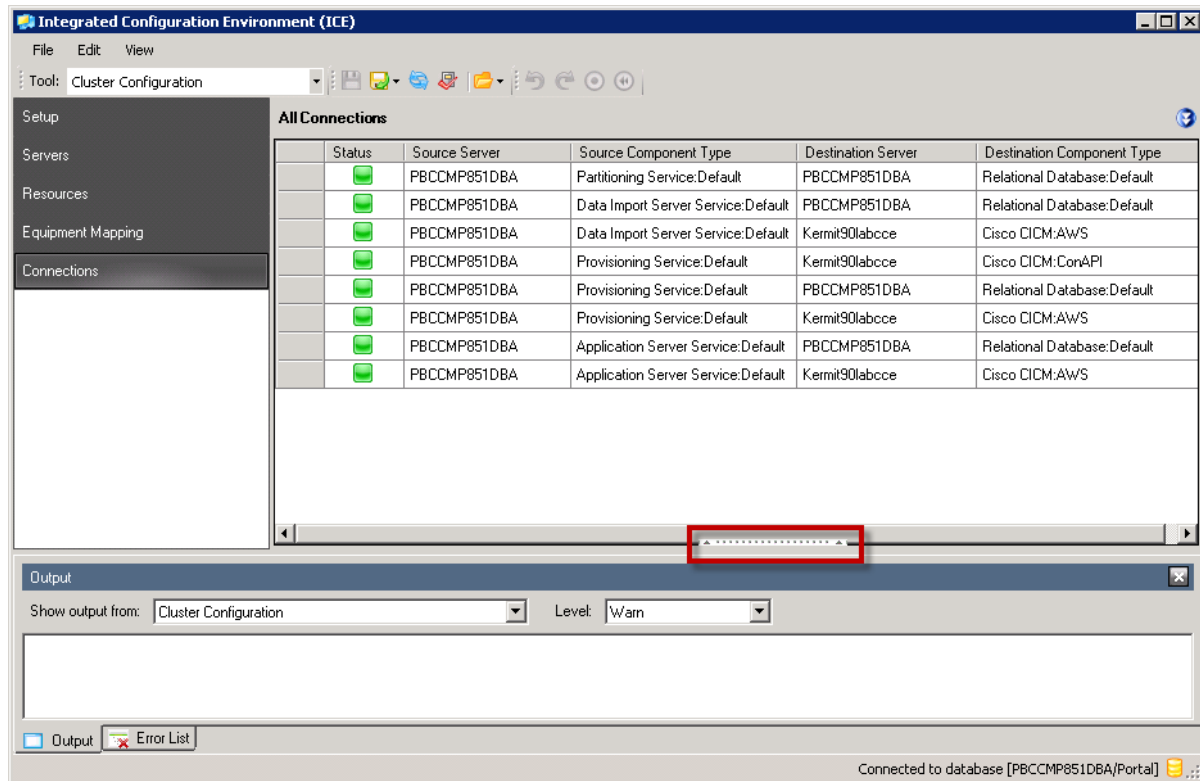
Figure 2.15   Connection Monitor Full Screen Mode

Connection status is automatically refreshed from the database. By default the status is refreshed every 5 seconds but this can be modified via the Cluster Configuration preferences (see section 2.2.2 "Cluster Configuration Preferences").

The Connections page includes a filter which allows you to filter by resource type, component type and server, for both the connection source and the connection destination. Click **Show Filter** ( ) to expand the filter area if it is not currently shown.

2.8   Diagnostic Portal Support

The ICE Cluster Configuration tool allows you to access the diagnostic portal and view diagnostic logs for the Unified CVP, Unified CCE and Unified CCDM servers.

To view the logs for a server:

• configure the diagnostic portal for the server (you only need to do this once)

- select the required log and logging period to access the required logs.

Configuring the Diagnostic Portal

To configure the diagnostic portal for a server:

1. On the server you want to configure, identify a username and password for an authorized user of the Diagnostic Framework. This user must be a trusted domain user in the **CONFIG** domain security group of the server being configured.

2. In the ICE Cluster Configuration tool, select the **Resources** tab.

3. Click on the server for which you want to configure the diagnostic portal.

4. In the right hand pane, select the **Components** tab.

5. Set the **Diagnostic Portal User Name** and **Diagnostic Portal Password** fields to the username and password of the authorized user you identified above.

6. Select **File >Save** or click the **Save** icon in the toolbar.

> **Note**
>
> For more information about the diagnostic portal see *Serviceability Best Practices Guide for Cisco Unified ICM/Unified CCE & Unified CCH, Chapter 10, Unified ICM/Unified CCE Diagnostic Tools*.

Accessing the Diagnostic Logs

To access a diagnostic log:

1. Right click on the server instance and from the context menu, select **Components**, then the component, then one of:
   - **View Logs** to view the logs
   - **View Trace Logs** to view the trace logs.

2. The Diagnostic Logs window is shown. In the Diagnostic Logs window, select the type of log you want to view from the drop down list in the top left of the window.

3. Specify the **From Date** and **To Date** to filter the results by a date range, then click **Fetch Result** to get a list of all available logs of that type within the selected date range.

4. The bottom left pane may show the logs that match the filter, or may show servers or folders containing logs that match the filter. Double click on the server or folder to view the contents of that item and drill down to the log files. When you locate the log file you want to view, double click on the log

file to view the contents in the Raw Data tab of the right hand pane. For CSV log files, you can also select the CSV tab of the right hand pane to view the log file in CSV format.

Note

To view diagnostic logs, you must previously have configured the diagnostic portal for this server as described above.

3   Replication Manager

3.1   About Replication Manager

The Unified CCDM Replication Manager allows you to manage SQL Server Replication between Unified CCDM databases.

The Replication Manager has two modes:

- Setup: Used to configure and disable SQL Server replication between the Unified CCDM databases.

- Monitor: Used to monitor general health of configured replication, at to start and stop replication agents.

The Replication Manger should typically be run on the Unified CCDM database publisher (side A) server. The user running the tool must be a Windows administrator on all the servers that take part in replication.

> **Note**
>
> To use the Replication Manager, the Unified CCDM database must be configured as dual sided.

3.2   The Replication Manager Setup Tab

3.2.1   About the Replication Manager Setup Tab

The Replication Manager Setup tab allows you to configure or disable SQL Server Replication. It shows the configured Unified CCDM primary database and the distributor server properties.

The initial configuration is derived from the values set in ICE Cluster Configuration. If any of the values are modified, the configuration must be saved before replication setup can continue.

3.2.2   Unified CCDM Database Server Properties

This section shows the publisher and subscriber Unified CCDM databases. The following information is available:

- **Publisher**. The publisher database.

    - **Server Name**. The name of the Database Server. This is fixed and cannot be changed using the ICE Replication Manager.

- **Catalog Name**. The name of the Unified CCDM database. It is recommended that the default value is used, but if the name is modified, then a Unified CCDM database with the new name must already exist on the corresponding database server.

- **Subscriber**. The subscriber database.

  - **Server Name**. The name of the Database Server. This is fixed and cannot be changed using the ICE Replication Manager.

  - **Catalog Name**. The name of the Unified CCDM database. It is recommended that the default value is used, but if the name is modified, then a Unified CCDM database with the new name must already exist on the corresponding database server.

3.2.3   Distributor Properties

This section shows the SQL Server Replication distributor properties. By default the distributor is created on the subscriber Unified CCDM Database Server. In most cases the default values are valid and should be used.

The following information is available:

- **Server Name**. The name of the subscriber server hosting the database as configured using ICE Cluster Configuration.

- **Catalog Name**. The name to be assigned to the distribution database. The recommended default is **distribution_portal**.

- **Data Folder**. The folder path on the distributor server where the data file for the distribution database will be created.

> **Note**
>
> If you are setting up replication after performing an upgrade, be particularly careful with the Data Folder path, as it may be different from the value used in previous versions. Make sure you use the path that was specified when the database was set up.

- **Log Folder**. The folder path on the distributor server where the transaction log file for the distribution database will be created.

- **Distribution Share**. The distribution share folder where replication snapshot files will be generated.

- **Override Distributor Admin Password**. Select to override the auto-generated replication password which will be used to establish connectivity. The auto-generated password is 14 characters long, and will contain alpha-

numeric characters (both upper and lower case) and a special character. If this does not meet the complexity requirements of the server then select this option and specify a password of your choice.

> **Note**
> This password is a one-off password used to set up replication. It is not stored and does not need to be recorded by the user.

3.3 The Replication Manager Monitor Tab

3.3.1 About the Replication Manager Monitor Tab

The Monitor tab shows the replication status and information about the data that is being copied from the publisher to the subscriber. It allows you to monitor the general health of the replication. It can also be used to start and stop various replication agents.

3.3.2 Monitor Panes

The Monitor tab contains four panes:

- **Publications** (top left) lists the publisher servers and the publications on each publisher that need to be shared with the subscribers.
- **Subscriptions and Agents** (top right) shows the subscriptions to a publication and the replication agents associated with a publication. This pane has two tabs:
    - **Subscriptions** shows the subscriptions to the selected publication. Right-click on a subscription to start or stop the subscription.
    - **Agents** shows the replication agents associated with the selected publication. Right-click on a replication agent to start or stop the agent.
- **Sessions** (bottom left) shows all sessions for the selected publication and replication agent in the last 24 hours.
- **Actions** (bottom right) shows the activity for the selected session. The status icons are:
    - Unknown
    - Running
    - Completed
    - Retry
    - Error

The information in the Monitor tab is refreshed every five seconds.

3.4   Using Replication Manager

3.4.1   Starting Replication Manager

To start Replication Manager:

1.   Launch **Integrated Configuration Environment** (installed as part of Unified CCDM). In the **Database Connection** dialog box, set:

       •   **Server Name**. Enter the name of the primary database server.

       •   **Database Name**. Enter the name of the Unified CCDM database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.

       •   **Authentication**. Select Windows Authentication.

2.   Click **OK**. The ICE Cluster Configuration tool starts by default.

3.   In the **Tools** drop-down, select **Replication Management**. The Replication Manager tool is displayed:

       •   If SQL Server replication is not currently configured, the Replication Manager tool starts in the **Setup** tab (see section 3.2 "The Replication Manager Setup Tab").

       •   If SQL Server replication is configured, the Replication Manager tool starts in the **Monitor** tab (see section 3.3 "The Replication Manager Monitor Tab").

3.4.2   Configuring Replication

To configure replication if replication is not running, in Replication Manager, select the **Setup** tab and click **Configure**. This process may take several minutes. Once replication has been configured, the Replication Manager automatically switches to the Monitor tab, which allows you to monitor the replication process.

3.4.3   Disabling Replication

To disable replication if replication is currently running, in Replication Manager, select the **Setup** tab and click **Disable**. This may take several minutes. When replication has been disabled, a confirmation message is displayed.

3.4.4 Monitoring Replication

To monitor replication for a publication, in Replication Manager, select the **Monitor**tab and select a publication in the top left pane. The subscriptions and replication agents associated with the selected publication are listed in the top right pane in the respective tab.

The **Subscriptions** tab shows all the subscriptions to the selected publication. It will help answer the following questions

- Which subscriptions are slow?

  This will show the latency of replication from publisher to the subscriber.

- Is the replication system healthy?

  The grid will show status icons for warnings and error for subscriptions that require attention.

The **Agents** tab displays the agents that are used by the selected publication. This tab shows the following agents:

- The Snapshot Agent is shown for all publications

- The Log Reader Agent is shown for transactional publications Base and NonQueued.

- The Queue Reader Agent is shown for transactional publication Base only.

You can use the Monitor tab to start and stop the Subscriptions and Replication Agents. In order to start or stop, right click on the selected subscription or agent and select **Start** or **Stop**.

You can view the session details for a Subscription or an Agent in the two bottom panes. Select the Subscription or Agent in the top right pane. The bottom left pane shows all the sessions for the selected Subscription or Agent in the last 24 hours. It shows the following details for each session:

- Status - the current status of the session.

- Start Time - when the session was started.

- End Time - when the session stopped. This is set only for sessions that are not currently running.

- Duration - the total duration for each session.

The bottom right pane shows the SQL Server Replication actions performed for a replication session. To see the actions for a replication session, select the replication session in the bottom left pane.

3.4.5   Identifying Replication Errors

The Monitor helps to identify replication errors that have occurred in replication. If an error has occurred in a particular subscription or an agent, the respective subscription or agent status icon will show an error.

Select the subscription or agent that shows the error. Selecting the subscription or agent will show their sessions. If an error occurred during a session, the session will show an error icon. Select the session with the error to see the actions. The actions describes the nature of the error in the action message.

3.5   More about Replication

3.5.1   Performance Considerations

Each time the information in the Monitor tab refreshes, it requests data from the underlying replication system. These additional requests may sometimes affect the overall performance of SQL Server Replication, especially on busy systems. As a result it is recommended that the Monitor should not be left running for long periods of time.

4   Failover Manager

4.1   About Failover Manager

The Unified CCDM Failover Manager allows you to manually switch the
Provisioning and Data Import services between two fully operational servers in a
dual-sided Unified CCDM installation.

> **Caution!**
>
> Only use the Unified CCDM Failover Manager to perform a planned manual
> failover, for example to perform maintenance on one of the servers. The service
> to be switched must be running and fully operational on both servers, and the data
> must have previously been synchronized between the servers.
>
> Do not use the Failover Manager to switch between servers in a disaster
> recovery scenario, for example if one of the servers has failed or has corrupt
> data. If in doubt, please contact your vendor support before continuing.

4.2   Using Failover Manager

4.2.1   Preparing to Use the Failover Manager

Before performing a failover for a service:

- Be aware that the service will be unavailable during the failover, and that for
  a large database, the failover may take a significant period of time.

- Ensure that you have an up-to-date database backup.

- Ensure that you are logged in as a domain level user who has administrative
  rights on both servers, and also on the machine being used to run the ICE
  tool.

- Ensure that the firewalls on both servers and on the machine being used to
  run the ICE tool are configured as in the Network and Environment
  Configuration section of the *Installation and Configuration Guide for Cisco
  Unified Contact Center Domain Manager*.

4.2.2   Starting the Failover Manager Tool

To start the Failover Manager tool:

1.   Launch **Integrated Configuration Environment** (installed as part of
     Unified CCDM). In the **Database Connection** dialog box, set:

- **Server Name**. Enter the name of the primary database server.
- **Database Name**. Enter the name of the Unified CCDM database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
- **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. In the **Tools** drop-down, select **Failover Management**. The Failover Manager tool is displayed, showing:

   - the Unified CCDM service types that support failover
   - the service that is currently active for each
   - where available, the currently inactive service that can used for failover.

For each service type, the currently active service is shown as a depressed button, and identified by **[active].** The inactive service is shown as a raised button that can be clicked to select it (see Figure 4.1 "Failover Management ICE Tool").

Note

This display simply indicates the active and inactive services that have been configured in your Unified CCDM installation. It does not indicate the health of the services. Before performing a failover, you should make sure that both services are fully operational.
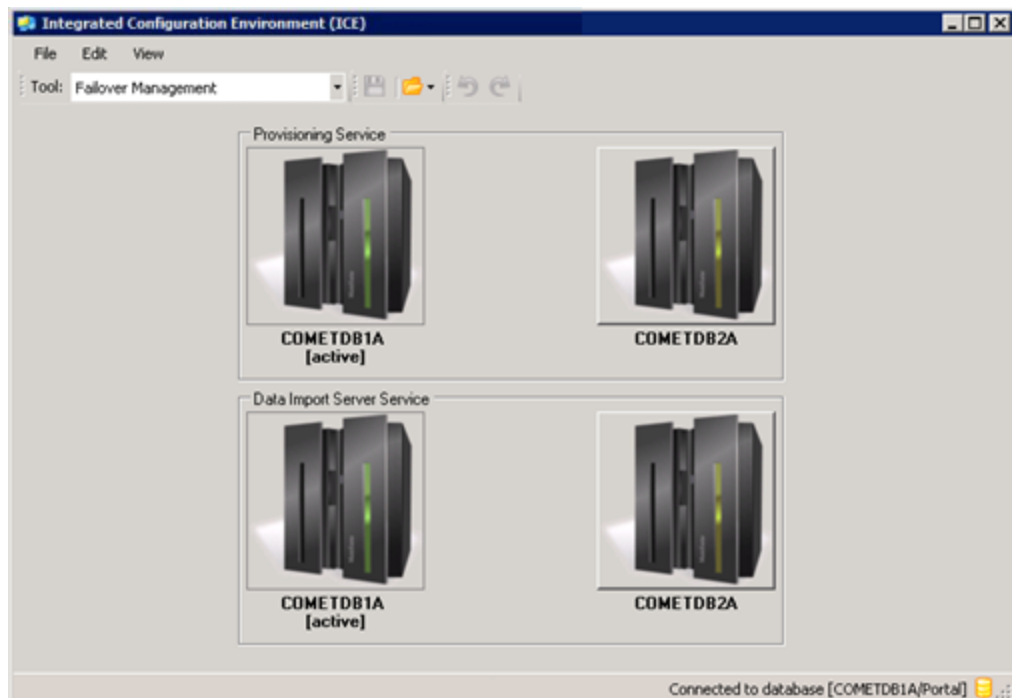
Figure 4.1   Failover Management ICE Tool

4.2.3   Performing a Failover Operation

To start a failover operation:

1.   In the Failover Manager tool, identify the service to be switched.

2.   Identify the service to be switched, and click on the raised button of the currently inactive service to display the **Manual Failover Wizard** confirmation dialog box.

3.   If you want to restart the new active service when the failover completes (the default option), select the **Restart services when complete** check box. If you do not want to restart the new active service when the failover completes (for example, if you want to perform other maintenance at the same time), clear the check box.

> **Caution!**
> Before continuing, make sure you really want to perform the failover at this time.

> The process may take some time to complete, and once it starts, it cannot be interrupted. During this time, neither the old active service nor the new active service will be available.

4. If you are sure you want to start the failover, click **Next**. The failover process may take some time to complete. The **Manual Failover Wizard** dialog box shows the progress and status for each step. A green tick means that the step completed successfully and a red cross means that the step completed but there was an error which needs to be fixed before the failover can continue.

5. Once the wizard has finished, click **Finished** to return to the main Failover Manager screen.

6. Confirm that the old service has stopped and the new service is running as follows:

    a. In ICE, select the Service Manager tool.

    b. Verify that the old service has stopped. If not, select it and click **Stop Selected**.

    c. If you selected the **Restart services when complete** option for the failover, verify that the new service has started, and, if not, select it and click **Start Selected**.

7. If the failover reported an error, then when the wizard finishes, neither the old service nor the new service will be running. The error message will help you identify and fix the problem and retry the failover, or you can restart the original active service. Contact your vendor support if you need further help or advice.

4.3   More About Failover Manager

This section describes the failover actions for each of the Unified CCDM services.

4.3.1   Provisioning Service

Provisioning service failover has the following steps:

*   stop the provisioning service on the server on which it is currently running.

*   migrate the active token.

*   if requested, start the provisioning service on the new active server.

4.3.2   Data Import Service

Data import service failover has the following steps:

- stop the data import server service on the server on which it is currently running.

- migrate the active token.

- if requested, start the data import server service on the new active server.

5 Service Manager

5.1 About Service Manager

The Service Manager allows you to monitor, start and stop Unified CCDM services from a central location.

5.2 Using Service Manager

Note

To use Service Manager to start and stop services you need to be logged in to Windows as a domain user with permission to start and stop services.

5.2.1 Starting Service Manager

To start the Service Manager tool, perform the following steps on the primary database server:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCDM). In the **Database Connection** dialog box, set:

    - **Server Name**. Enter the name of the primary database server.

    - **Database Name**. Enter the name of the Unified CCDM database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.

    - **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. In the **Tools** drop-down, select **Service Manager**. The Service Manager tool is displayed, showing a table of Unified CCDM services including the machine name they are installed on, the service name and the current status (Running, Starting, Stopping or Stopped).

5.2.2 Starting Services

To start one or more Unified CCDM services, on the primary database server:

1. In the Service Manager tool, click on the service or services you want to star. If you want to start all or most of the services, you can select the **All** checkbox, then, if required, click on any services you do not want to start. Select the **All** checkbox again to deselect all the services in the list.

2.   Click **Start Selected**.

3.   A dialog box opens, reporting the status of each service as it is started. Click **Close** when complete.

If a service is already started then no action is taken.

5.2.3   Stopping Services

To stop one or more Unified CCDM services, perform the following steps on the primary database server:

1.   In the Service Manager tool, click anywhere on each service you want to stop. If you want to stop all or most of the services, click **Select/Deselect All**, then, if required, click on any services you do not want to stop. Click Select/**Deselect All** again to deselect all the services in the list.

2.   Click **Stop Selected**.

3.   A dialogue box opens, reporting the status of each service as it is stopped. Click **Close** when complete**.**

If a service is already stopped then no action is taken.

5.2.4   Restarting Services

To stop and restart one or more Unified CCDM services, perform the following steps on the primary database server:

1.   In the Service Manager tool, click anywhere on each service you want to restart, to select the service. If you want to restart all or most of the services, click **Select All**, then, if required, click on any services you do not want to restart. Click **Deselect All** to deselect all the services in the list.

2.   Click **Restart Selected**.

3.   A dialog box opens, reporting the status of each service as it is stopped and restarted. Click **Close** when complete.

If a service is already stopped then it is just restarted.

5.2.5   Sorting Services

The Service Manager tool allows you to sort the Unified CCDM services by machine name, service name or current service status. To do this, perform the following steps on the primary database server:

1.   In the Service Manager tool, click the column heading of the column you want to sort on. The list of services is sorted in ascending order according to the contents of that column.

2. If you want to sort the services in descending order, click the column name again. The list of services is displayed in descending order.

5.2.6 Filtering Services

The Service Manager tool allows you to filter the list of services by machine name, service name or service group.

Setting a Filter

1. In the Service Manager tool, select the filter or filters you require:
   - To filter by machine name, start typing the machine name or part of the machine name into the text box. The list of services is updated as you type, to show only those that contain the letters you specify.
   - To filter by service name, select the arrow beside the text box to display the list of available service names, and select the service name you want to filter by.
   - To filter by service group, select the arrow beside the text box to display the list of available service names, and select the service group you want to filter by.

2. The list of services is filtered according to the filter or filters you specified.

Clearing a Filter

To clear all the filters, select the icon beside the filter boxes (only shown if you have set some filters).

To clear an individual filter do one of the following:
- To clear the filter for the machine name, delete the characters in the Machine Name text box.
- To clear the filter for the service name or service group, select the blank entry from the drop down list.

Refreshing the Filtered List

To refresh the list of services, but retain the current filters, click **Refresh**.

Reloading the List of Services

To clear all filters and reload the servers and services from the database, click **Reload**.

5.2.7   Using the Shortcut Menu

Service Manager also has a shortcut menu. Right-click anywhere in the list of services to see a shortcut menu with the following options:

- Select/Deselect All
- Start All
- Stop All
- Start Selected
- Stop Selected
- Apply Filter
- Clear Filter.

6 System Properties Manager

6.1 About System Properties Manager

The System Properties Manager allows you to view and set Unified CCDM system properties.

6.2 Using System Properties Manager

6.2.1 Starting System Properties Manager

To open the System Properties Manager tool, perform the following steps on the server where the properties need to modified.

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCDM). In the **Database Connection** dialog box, set:

   - **Server Name**. Enter the name of the primary database server.

   - **Database Name**. Enter the name of the Unified CCDM database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.

   - **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. In the **Tools** drop-down, select **System Properties Manager**. The System Properties Manager tool is displayed, showing the Unified CCDM properties, grouped by property type and functionality.

The following property types are available:

- Global properties (see section 6.3.1 "Global Properties Tab")

- Local properties (see section 6.3.2 "Local Properties Tab")

- Capacity properties (see section 6.3.3 "Capacity Properties Tab").

When you first start the System Properties Manager from ICE, the display shows the global properties. To see the other properties, click in the appropriate tab in the left hand pane.

6.3 System Properties Reference

6.3.1 Global Properties Tab

The Global Properties tab allows you to view and configure system wide items and items that affect multiple Unified CCDM components.

The properties are grouped as follows:

Activity Monitor

This group specifies configuration information for the Activity Monitor. This group contains the following properties:

- **Provisioning Warn Threshold**. The number of seconds after which an item or membership in the provisioning queue is shown in the middle (orange) band of the Activity Monitor.

- **Provisioning Max Threshold**. The number of seconds after which an item or membership in the provisioning queue is shown in the top (red) band of the Activity Monitor.

Code Lookup and Supported Equipment Types

This group specifies information about equipment types. This group contains the following property:

- **Code Lookup and Supported Equipment Types**. The type of equipment that is used to import codes into the Unified CCDM database. Currently the only supported value is **CRT_CICM** (equipment type Cisco CICM)

Gadget Management

This group specifies the gadget management settings. This group contains the following properties:

- **Default Welcome Gadget**. The GUID of the default gadget that is shown on the gadget canvas if no App is selected. Set the value to "00000000-0000-0000-0000-000000000000" for none. Do not change this value unless instructed to by your vendor support.

- **Gadgets Cache Expiration Period**. The time period in seconds after which a cached gadget definition expires and is removed from the gadget cache. To disable the gadget cache during gadget development, set this to zero. For normal production use, this should be set to a non-zero value.

- **Gadget File Path**. The file path to a location on the web server where gadget files are located (used during gadget development only). Each gadget file name must match the name of the gadget it contains. If the gadget cache expiration period is zero, then Unified CCDM will first look for gadget files in this location and only load a gadget from the database if the gadget is not found here. For normal production use, this should be set to the empty string.

Importer State

This group specifies the import data settings. This group contains the following properties:

- **Bow Wave Duration Hours**. The time period in hours relative to a cluster resource creation date that constitutes the bow wave period. The value is between 1 and 24.

- **Bow Wave Effective From**. The effective from date for dimensions created during a bow wave.

- **Last Cluster Update**. The date and time the cluster was last updated (read-only).

Login Authentication Configuration

This group specifies the way that Unified CCDM logins are authenticated. This group contains the following properties:

- **Active Directory Binding Options**. Specifies the way that the Unified CCDM App/Web server connects to Windows Active Directory. This property only applies if **Login Authentication Mode** is set to **Active Directory.** In most installations, the default values will be suitable, but consult your Windows system administrator if you need further advice. Each of the following options can be selected or cleared:

  - **Negotiate**
  - **None**
  - **Sealing**
  - **Secure Socket Layer**
  - **Server Bind**
  - **Signing**
  - **Simple Bind**

  For more information about the options and what they mean, see the Microsoft .NET documentation, http://msdn.microsoft.com/en-us/library/system.directoryservices.accountmanagement.contextoptions.aspx (checked February 2013).

- **Active Directory Context Type**. Specifies the type of store used to authenticate against. This property only applies if **Login Authentication Mode** is set to **Active Directory.** In most installations, the default value will be suitable, but consult your Windows system administrator if you need further advice. The following options are available:

  - **Application Directory**

  - **Domain** (default)

  - **Machine**

  For more information about the options and what they mean, see the Microsoft .NET documentation, http://msdn.microsoft.com/en-us/library/system.directoryservices.accountmanagement.contexttype.aspx (checked February 2013).

- **Credential Cache Expiration Period**. Specifies the time in seconds that the user's login is cached before being re-authenticated. This re-authentication is internal, and not visible to the user. Choose a longer cache expiry to reduce the traffic between the Unified CCDM Web/App server and the authenticating server.

- **Credential Cache Expiration Type**. Specifies the way in which the expiry period for re-authentications is determined. One of:

  - **Absolute Expiry:** the expiry period for re-authentication is measured from the last authentication, whether or not the user has been active on the system since that time.

  - **Sliding Expiry:** the expiry period for re-authentication is measured from the last time the user was active on the system, or from the last re-authentication, if that was later.

- **Ext Auto Create User**. Reserved for future use.

- **Login Authentication Mode**. Specifies the way that Unified CCDM authenticates users. One of:

  - **Portal:** users must log into Unified CCDM directly using a Unified CCDM username and password

  - **Active Directory:** users are automatically logged into Unified CCDM using their Windows login credentials.

Login Security

This group specifies the default behavior when creating users. This group contains the following properties:

- **Create Advanced Users Groups**. Determines if an advanced users group is created when a folder is set to not inherit permissions. One of **True** or **False**.

- **Create Basic Users Groups**. Determines if a basic users group is created when a folder is set to not inherit permissions. One of **True** or **False**.

- **Create Supervisor Users Groups**. Determines if a supervisor users group is created when a folder is set to not inherit permissions. One of **True** or **False.**

- **Default Home Folder Role** The role that is automatically associated with a user on their home folder when the home folder is created.

- **Default Tenant Administrators Role**. The role that is automatically associated with the Administrators group when a new Tenant or policy root folder is created.

- **Default Tenant Supervisors Role**. The role that is automatically associated with the Supervisors group when a new Tenant or policy root folder is created.

- **Default Tenant Users Role**. Specifies the role that is automatically associated with the Users group when a new Tenant or policy root folder is created.

- **Home Folder Suffix**. The suffix that is appended to the username when a home folder is created for a user.

- **Max Password Length**. The maximum number of characters allowed in a password.

- **Min Password Length** .The minimum number of characters allowed in a password.

- **Minimum Password Lifetime**. The minimum number of days that a password can be used for, before it is possible to change it.

- **Password Expiry**. The number of days before a password expires and has to be changed, measured from the date that the password was last changed.

- **Password Format**. The required password format. This field can also be set in the web application using **Settings > Security Settings > Password Format.** If one of predefined password formats (Low Security, Medium Security, Medium/High Security or High Security) is chosen in the web application, this field is automatically populated with the corresponding expression. This field is a .NET regular expression, except that the expression {MIN_MAX} can also be used to specify that the password length must lie between the values specified for **Min Password Length** and **Max**

Password Length. For example, if Min Password Length is 8 and Max Password Length is 20, then `{MIN_MAX}` is equivalent to `{8,20}` in the .NET regular expression syntax.

- **Password Hash Algorithm**. Specifies the algorithm for encoding user passwords. Passwords are encoded using the hash algorithm in force when the password is created. To change the encoding of existing passwords, in the web application User Manager tool, set **User must change password at next login** for each user. One of the following (in order of increasing security):

  - **SHA1** (default)

  - **SHA256**

  - **SHA384**

  - **SHA512**

- **Password History**. The number of previous passwords that are saved and cannot be reused when a user password is changed.

- **Password Reuse Time**. The minimum number of days that must elapse before a previous password can be reused.

- **Product Name**. The name of the product to display in the user interface, allowing organizations to personalize the product.

- **User Lockout**. The number of failed login attempts that a user is allowed before their account is locked.

Media Upload

This group specifies the default behavior for uploading media. This group contains the following properties:

- **Media File Accepted Formats**. A comma separated list of file extensions that are valid for media files.

- **Media Share**. The network share name where WAV files uploaded through the Unified CCDM user interface will be placed for replication to the CVP Media Server.

Miscellaneous

- This group specifies some miscellaneous properties. This group contains the following properties:

- **Agent Description Field Mandatory**. Whether the agent description field is mandatory when agents are created and edited. One of **True** or **False.**

- **Agent Description Format**. A regular expression defining the characters that are not allowed in the agent description field. Special characters must be escaped. For example, if you wanted to exclude the characters "z", "&" and "*", you would enter [z\&*].

- **Allow Folder Tree Drag Drop**. Whether the web application supports drag and drop for folders in the folder tree. One of **True** or **False**.

- **Display Purge Button Stuck Seconds**. The number of seconds to wait before determining that an item in synchronizing or pending state is blocked. Once this time has been exceeded a purge button is displayed in the web application.

- **Menu Items**. Custom applications can be added to the menu bar by the inclusion of a display name and URL. Items separated by a semi colon.

- **Prov Agent State Trace Enabled**. Determines whether Resource Manager users can enable the ICM State Trace feature on agents. ICM State Trace provides enhanced logging information when individual agents move from one state to another.

- **Query Parameter Boundary**. The maximum number of parameters in an SQL query before a sub query is generated.

- **Supported Languages**. The culture codes for the languages supported by the installation. Click the drop-down list to see and select the supported languages.

- **Supported Peripheral Types**. The peripheral types that can be associated with resources such as agents. Click the drop-down list to see and select the supported peripheral types.

- **Web Server Debug Info Disclosure**. Whether server and culture information is shown in the web application when the user right-clicks on the Unified CCDM logo. One of **True** or **False**.

Other Security

This group specifies other security options. This group contains the following properties:

- **Enable User Copy**. Determines whether the user copy feature is available in the Unified CCDM web application. One of **True** or **False**.

- **Inherit Permissions Default**. Determines whether the Inherit Permissions check box is selected by default when a new folder is created. One of **True** or **False**.

- **Push Policy Changes to Child**. Determines whether the Change Permissions for Subfolders check box in Security Manager is selected by default when the user selects Change Permissions. One of **True** or **False**.

Partitioning State

This group specifies database partitioning options. This group contains the following properties:

- **Last Partition Metadata Change**. The date and time that the partition metadata was last updated (read-only).

Resource Management Properties

- **Resources Max Array Length**. For the Resource Management Web Services API, the maximum number of resource items that can be returned in the results array. The API will report an error if the number of items to be returned exceeds this limit. Note that for the REST GET, DELETE or PUT methods, the REST URL limit will normally be exceeded first.

- **Resources Max Write Array Length**. For the Resource Management Web Services API, the maximum number of resources that can be created, updated or saved in a single API call.

System Limits

- **Max Dimension Associated Items**. The maximum number of associated items that can be listed for a dimension in the web application.

- **Max Dimension Drop Down List Items**. The maximum number of dimension items that can be shown in a drop-down list in the web application before the list is disabled.

6.3.2   Local Properties Tab

The Local Properties tab allows you to view information from the local machine.

The properties are grouped as follows:

Partitioning State

This group specifies partition table information. This group contains the following property:

- **Last Partition Tables Refresh**. The date and time of the last partition table refresh (read-only).

Versioning Group

This group displays the following version numbers. This group contains the following properties:

- **Build Version**. The build cycle that the installation was taken from (read-only).

- **Schema Version**. The version of the database schema being used (read-only).

6.3.3   Capacity Properties Tab

The Capacity Properties tab allows you to view and configure the capacity rules for the remote equipment. A capacity rule may apply to:

- all equipment of a specified type in the cluster, or only to a specific equipment instance

- all tenants in the cluster, or only to a specific tenant.

The properties of the capacity rules are determined by the remote equipment. The properties are grouped by capacity rule. Each capacity rule has the following properties:

- **CapacityId**. The database primary key of the capacity rule (read-only).

- **ItemType**. The resource type that the capacity rule applies to (read-only).

- **MemberType**. The membership that the capacity rule applies to, or **<None>** (read-only).

- **ViaMemberType**. The additional membership that the capacity rule applies to, or **<None>** (read-only).

- **Description**. The description of this capacity rule (read-only).

- **MaxCapacity**. The maximum number of resources or memberships allowed under this capacity rule. This value can be edited if the **System** property is **False**, or if the **ClusterInstance** property is **<All>.** Otherwise this value is read-only.

- **ClusterType**. The cluster type of the remote equipment that the capacity rule applies to (read-only).

- **ClusterInstance**. The remote equipment that the capacity rule applies to (read-only). One of:

  - **<All>**, if the capacity rule applies to all instances of that equipment type

  - the specific cluster name of the remote equipment, if the capacity rule only applies to a single instance of that equipment type.

- **TenantName**. The tenant that the capacity rule applies to (read-only). One of:

  - **<All>**: if the capacity rule applies to all tenants on the specified equipment

- the specific tenant name, if the capacity rule only applies to a single tenant on the specified equipment.

- **CreationDate**. The date that this capacity rule was created (read-only).

- **ModifiedDate**. The date that this capacity rule was last modified (read-only).

- **System**. Determines whether this the capacity rule is a default system value, or whether it was added as a customization (read-only). One of:

  - **True**: the rule is a default system value

  - **False**: the rule is a customization.

- **Enabled** Determines whether this capacity rule should be considered when creating a resource or membership. One of **True** or **False**.

7   Gadget Provider Manager

7.1   About Gadget Provider Manager

7.1.1   Description

The ICE Gadget Provider Manager allows you to manage the gadget providers and folder mappings in the system.

7.1.2   Gadget Providers

A *gadget provider* represents a system that a gadget interacts with. The gadget provider is used to provide API access to retrieve data or perform actions in external systems. This allows for highly customizable Web 2.0 mash-ups to be hosted inside Unified CCDM without needing custom application development to support them. For example, a gadget provider may be a third party system that provides CRM information to a gadget via a REST web service.

Unified CCDM comes pre-configured with a standard gadget provider which is associated with the standard Unified CCDM gadgets. This gadget provider can be used for any gadgets that don't need to access external APIs.

When a gadget is added to Unified CCDM it must be associated with a single gadget provider.

7.1.3   Folder Mappings

A gadget provider *folder mapping* links a gadget with a destination API. The folder mapping definition includes a gadget provider, a folder (which acts as a filter to apply a given mapping), inbound URL parameters and outbound URL parameters. This information is used to re-write API requests from gadgets to their appropriate destination.

7.2   Using Gadget Provider Manager

7.2.1   Starting Gadget Provider Manager

To start the ICE Gadget Provider Manager:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCDM). In the **Database Connection** dialog box, set:

   - **Server Name**. Enter the name of the primary database server.

> • **Database Name**. Enter the name of the Unified CCDM database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.
>
> • **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3. In the **Tools** drop-down, select **Gadget Provider**. The Gadget Provider tool is displayed, showing a list of gadget providers and their associated folder mappings.

7.2.2 Adding a Gadget Provider

To add a gadget provider:

1. Start the ICE Gadget Provider Manager (see section 7.2.1 "Starting Gadget Provider Manager").

2. Click **Manage Providers,** then click in the blank row at the bottom of the list of gadget providers. Enter the name of the gadget provider and select **Enable**.

3. Click **Close**.

4. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu. The gadget provider is now available for use in the web application.

You can now

• add one or more folder mappings to re-write API requests to a destination URL based on Unified CCDM folder path and gadget based parameters (see section 7.2.5 "Adding a Gadget Provider Folder Mapping")

• upload gadgets that use APIs from this gadget provider (see the *User Guide for Cisco Unified Contact Center Domain Manager*)

• define gadget provider user mappings for Unified CCDM user(s) to specify the credentials the user requires to authenticate with that gadget provider's system

7.2.3 Editing a Gadget Provider

To edit an existing gadget provider:

1. Start the ICE Gadget Provider Manager (see section 7.2.1 "Starting Gadget Provider Manager").

2. Click **Manage Providers**, locate the gadget provider you want to edit in the list of gadget providers, and amend the details as required.

3. Click **Close**.

4. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

7.2.4   Deleting a Gadget Provider

To delete a gadget provider:

1. Start the ICE Gadget Provider Manager (see section 7.2.1 "Starting Gadget Provider Manager").

2. Click **Manage Providers,** locate the gadget provider you want to delete in the list of gadget providers, and click **Delete**. Click **OK** to confirm the deletion. Deleting a provider will delete all the associated folder mappings. The Standard Gadget Provider cannot be deleted.

3. Click **Close**.

4. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

7.2.5   Adding a Gadget Provider Folder Mapping

To add a gadget provider folder mapping:

1. Start the ICE Gadget Provider Manager (see section 7.2.1 "Starting Gadget Provider Manager").

2. Click **Add Folder Mapping**. In the Add Folder Mapping dialog box, complete the fields as follows:

    •   **Name**: the name of the folder mapping.

    •   **Description**: (optional) a description for the folder mapping.

    •   **Gadget Provider**: select the required gadget provider from the drop-down list.

    •   **Folder Path**: the folder path where the Gadget Provider Folder Mapping (referred to as Gadget Provider Instance in the Unified CCDM web application) will be placed.

    •   **Remote Server Address**: The destination server address for the API requests. This is a string that is used to re-write API calls to a URL, based on the parameters set below. Unified CCDM proxies these requests through an application request routing layer so that the gadget can interact with its associated provider.

    •   **URL Format**: A string format for the re-written URL for the gadget API calls. The format supports four parameters, {0}, {1}, {2} and {3}.

{2} is replaced with the gadget provider string, and the other three are derived from the fields below. A format which uses all four might look like this {0}://{1}/{2}/{3}.

- **URL Protocol**: The protocol for the request (for example, http or https), replaces parameter {0} if specified in the URL format string. Select from the drop-down list.

- **URL Server**: The hostname or IP address of the server that API requests should be sent to, replaces parameter {1} if specified in the URL format string. For Unified CCDM web servers, set this to the URL that end users use to access the platform, for example, **https://www.CCDM.com/portal**.

- **URL Translation Key**: A variable that can be used to distinguish API calls from different tenants, replaces parameter {3} if specified in the URL format string. This is used to re-write requests to the appropriate destination API.

3. Click **OK**. The new gadget provider folder mapping is shown in the list of mappings in the Gadget Provider Manager.

4. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

7.2.6 Editing a Gadget Provider Folder Mapping

To edit an existing gadget provider folder mapping:

1. Start the ICE Gadget Provider Manager (see section 7.2.1 "Starting Gadget Provider Manager").

2. Identify the gadget provider folder mapping that you want to edit, and click the **Edit** button beside it.

3. In the Edit Folder Mapping dialog box, make the required changes, then click **OK**.

4. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

7.2.7 Deleting a Gadget Provider Folder Mapping

To delete an existing gadget provider folder mapping:

1. Start the ICE Gadget Provider Manager (see section 7.2.1 "Starting Gadget Provider Manager").

2. Identify the gadget provider folder mapping that you want to delete, and click the **Delete** button beside it. Click **OK** to confirm the deletion.

3. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

7.3 Gadget Provider Manager Reference

7.3.1 Gadget Provider Commands

Command	Function
Add Folder Mapping	Allows you to add a new gadget provider folder mapping.
Manage Providers	Allows you to create, edit and delete gadget providers.

7.3.2 Folder Mapping Dialog Fields

Field	Description	Entry
Name	The name of the folder mapping you are defining.	Text string.
Description	The description of the folder mapping you are defining.	Text string.
Gadget Provider	The gadget provider for this folder mapping. Note that this is the provider of the system that the Unified CCDM gadget interacts with, not the provider of the gadget itself.	Select from the drop-down list of available gadget providers.
Folder Path	The folder path where the Gadget Provider Folder Mapping (referred to as Gadget Provider Instance in the Unified CCDM Resource Management tool) will be placed.	Select the folder path from the folder tree.
Remote Server Address	The destination server address where API requests should terminate. This string will be used to re-write API calls to a URL. Unified CCDM will proxy requests through an Application Request Routing layer so that the gadget can interact with its associated provider.	Server name, IP address or mapped domain name for the destination service. For example, **SERVER1**, **10.10.10.19**, or **server.domain.com**.

Field	Description	Entry
URL Format	A string format that is used for the re-written URL that the gadget will use for API interaction.	Text string format that is used for the end URL that the gadget uses for API requests. e.g. {0}://{1}/{2}/{3}. Parameter {2} will be replaced with the gadget provider string to distinguish the difference between different re-written API calls from different gadgets.
URL Protocol	The protocol for the request, replaces parameter {0} if specified in the URL format.	Select from the drop-down list of available protocols. One of **http** or **https**.
URL Server	The hostname or IP address of the server that API requests should be sent to. For Unified CCDM web servers, this is the URL that end users use to access the platform, for example, **https://www.CCDM.com/portal**. Replaces parameter {1} if specified in the URL format.	Text string
URL Translation Key	A variable that a can be used to distinguish API calls from different tenants, replaces parameter {3} if specified in the URL format. This is used to re-write requests to their appropriate destination API.	Text string

7.3.3 Manage Providers Dialog Fields

Field	Description	Entry
Name	Name of the gadget provider	Text string
Enabled	Whether this gadget provider is available for use.	Select check box to enable.

8 Custom Dimension Editor

8.1 About the Custom Dimension Editor

8.1.1 Description

The ICE Custom Dimension Editor allows you to create and edit custom dimensions.

8.1.2 Custom Dimensions

Custom dimensions are user-defined dimensions that store user data in Unified CCDM. This data can be exported from the database, used in custom reports and also accessed programmatically using the Unified CCDM Web Services APIs. Each item in a custom dimension can have free-format attributes, defined as name-value pairs.

Unified CCDM provides ten custom dimensions, **Custom0**, **Custom1**, **Custom2**, . . . **Custom9**. Each custom dimension can be used to store any number of items, and each item can have any number of custom attributes. Each item in a custom dimension can have the same attributes, or different items can have different attributes, depending on the requirements. The Custom Dimension Editor does not check the attribute names or content, so it is up to the user to enforce any rules that apply.

8.2 Using the Custom Dimension Editor

8.2.1 Starting the Custom Dimension Editor

To start the ICE Custom Dimension Editor:

1. Launch **Integrated Configuration Environment** (installed as part of Unified CCDM). In the **Database Connection** dialog box, set:

   • **Server Name**. Enter the name of the primary database server.

   • **Database Name**. Enter the name of the Unified CCDM database that was installed when setting up the Database Component. If you accepted the default value, this will be **Portal**.

   • **Authentication**. Select Windows Authentication.

2. Click **OK**. The ICE Cluster Configuration tool starts by default.

3.   In the **Tools** drop-down, select **Custom Dimension Editor**. The Custom Dimension Editor is displayed, showing **Custom0** to **Custom9** tabs and a grid listing the custom dimension items.

8.2.2   Adding a Custom Dimension Item

To add a custom dimension item:

1.   Start the ICE Custom Dimension Editor (see section 8.2.1 "Starting the Custom Dimension Editor").

2.   Click the custom dimension corresponding to the item you want to add. For example to add a new item to **Custom2**, click the **Custom2** tab.

3.   In the grid, enter a name for the custom dimension item, and optionally, a description.

4.   To add attributes:

   a.   In the attribute column, click **Add** (shown as **Edit** if the custom dimension item already has one or more attributes).

   b.   In the Attributes dialog box, in the blank row, enter the name of the attribute and the required value. All values are stored as strings.

   c.   Add additional attribute rows as required. When you have finished adding attributes, click **OK** to return to the Custom Dimension Editor.

Note

A custom dimension item cannot have two attributes with the same name. Unified CCDM does not carry out any other validation on the attribute names or values, so if you require specific attributes to be present, or for attributes to have a specific range of values, your must enforce this yourself.

5.   To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu. The custom dimension item is created in the **/Shared** folder in the Unified CCDM folder tree.

8.2.3   Editing a custom dimension item

To edit a custom dimension item:

1.   Start the ICE Custom Dimension Editor (see section 8.2.1 "Starting the Custom Dimension Editor").

2.   Click the custom dimension tab that contains the item you want to edit.

3.   In the grid, locate the item you want to edit.

   •   You can change the name or description of a custom dimension item directly in the grid.

- To edit the attributes, click **Edit** beside the item (or **Add** if the item has no attributes yet) then make the required changes to the attributes.

  - You can change the name or value of an attribute directly in the grid.

  - To add an attribute, in the blank row, enter the name of the attribute and the required value. All values are stored as strings.

  - To delete an attribute, select the attribute row you want to delete, then press the **Delete** key on your keyboard. You can also select multiple rows to delete multiple attributes.

4. When you have finished, click **OK** to return to the Custom Dimension Editor.

5. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

8.2.4 Deleting a Custom Dimension Item

To delete a custom dimension item:

1. Start the ICE Custom Dimension Editor(see section 8.2.1 "Starting the Custom Dimension Editor").

2. Click the custom dimension tab that contains the item you want to delete.

3. In the grid, select the check box beside the item or items you want to delete. You can click **Select All** to select all items in the grid, or **Select None** to clear all the selections you have made in the grid.

4. When you have selected the item or items you want to delete, click **Delete Selected** to delete the items.

5. To save and action your changes, either click the **Save** icon in the tool bar or select **File > Save** from the menu.

> **Tip**
> You can also use the classic Resource Manager in the Unified CCDM web application to delete custom dimension items.

8.2.5 Moving a Custom Dimension Item

The Custom Dimension Editor creates all custom dimension items in the **/Shared** folder. You can use the classic Resource Manager in the Web UI to move custom dimension items to other folders if required. See the *User Guide for Cisco Unified Contact Center Domain Manager* or the on-line help for more information.

The Custom Dimension Editor does not show the folder path of an item, and can only create items in the **/Shared** folder. But if the item has been moved, the new location is retained when the item is edited.