



## **Cisco Contact Center Gateway Deployment Guide for Cisco Unified ICM/CCE 12.0(1)**

**First Published:** 2019-01-11

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## Change History

Change	See	Date
<b>Initial Release of Document for Release 12.0(1)</b>		January, 2019
Added information on dropping parties from conferences	Enable Dropping Call Participants from a Conference Call	

## About This Guide

This guide describes how to install, configure, and use the Cisco Contact Center Gateway feature. The Contact Center Gateway enables Cisco Unified Contact Center Enterprise (Unified CCE) to appear as an ACD (Automatic Call Distributor) to Cisco Unified Intelligent Contact Management in a Parent/Child deployment.

## Audience

This guide is intended for users who deploy and administer contact centers that use the Cisco Contact Center Gateway software.

## Organization of This Guide

Section	Content
Cisco Contact Center Gateway	Introduces the Contact Center Gateway and discusses its use in Parent/Child deployments.
Cisco Contact Center Gateway Deployment Example	Presents an example deployment that uses the Contact Center Gateway with a walk-through of the deployment process.
Contact Center Gateway with Unified CCE Deployment	Provides instructions for deploying the Contact Center Gateway with a child Unified CCE system.

## Related Documents

Document or resource	Link
Cisco Unified Contact Center Enterprise Documentation Guide	<a href="https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-user-guide-list.html">https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-user-guide-list.html</a>
Cisco Unified Contact Center Enterprise Installation and Upgrade Guide	<a href="https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html">https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html</a>
Configuration Guide for Cisco Unified Intelligent Contact Management/Contact Center Enterprise	<a href="https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html">https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html</a>

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This document uses the following conventions:

Convention	Description
<b>boldface font</b>	Boldface font is used to indicate commands, such as user entries, keys, buttons, and folder and submenu names. For example: <ul style="list-style-type: none"> <li>• Choose <b>Edit</b> &gt; <b>Find</b>.</li> <li>• Click <b>Finish</b>.</li> </ul>
<i>italic font</i>	Italic font is used to indicate the following: <ul style="list-style-type: none"> <li>• To introduce a new term. Example: A <i>skill group</i> is a collection of agents who share similar skills.</li> <li>• A syntax value that the user must replace. Example: IF (<i>condition, true-value, false-value</i>)</li> <li>• A book title. Example: See the <i>Cisco Unified Contact Center Enterprise Installation and Upgrade Guide</i>.</li> </ul>
window font	Window font, such as Courier, is used for the following: <ul style="list-style-type: none"> <li>• Text as it appears in code or that the window displays. Example:               <pre>&lt;html&gt;&lt;title&gt;Cisco Systems, Inc. &lt;/title&gt;&lt;/html&gt;</pre> </li> </ul>

Convention	Description
< >	<p data-bbox="620 289 1149 321">Angle brackets are used to indicate the following:</p> <ul data-bbox="657 338 1484 453" style="list-style-type: none"><li data-bbox="657 338 1484 369">• For arguments where the context does not allow italic, such as ASCII output.</li><li data-bbox="657 390 1484 453">• A character string that the user enters but that does not appear on the window such as a password.</li></ul>



## CHAPTER 1

# Cisco Contact Center Gateway

- [Cisco Contact Center Gateway Feature, on page 1](#)
- [Parent/Child Deployments, on page 2](#)
- [Gateway Autoconfiguration, on page 2](#)
- [Gateway Deployment Types, on page 2](#)
- [Routing in Gateway Deployments, on page 7](#)
- [Reporting in Gateway Deployments, on page 8](#)
- [Upgrade Considerations for Gateway Deployments, on page 9](#)

## Cisco Contact Center Gateway Feature

The Cisco Contact Center Gateway feature uses the Unified CCE PG which connects the Unified ICM system to a Unified CCE system. Unified CCE Peripheral Gateway allows Unified CCE to appear as a traditional ACD connected to the Unified ICM system. The Unified CCE Gateway PG provides the Unified ICM system with a PG that communicates with the CTI interface of the Unified CCE System PG.

You can use the Cisco Contact Center Gateway feature for deployments with geographically distributed call centers. Each call center has remote survivability and administrative independence. You can integrate new contact centers into an existing Unified ICM environment with many TDM ACD sites. Peripherals that are legacy ACDs and gateway types can use a single minimum expected delay (MED) script node to transfer a call to the best site.

Cisco Contact Center Gateway PG provides all standard Peripheral Interface Manager (PIM) data and functionality including:

- Call event notification
- Agent State notification
- Translation Routing
- Pre- and Post-Routing
- Real-time data
- Historical data

Cisco Contact Center Gateway also provides an autoconfiguration feature, which reduces the need for repeating configuration tasks between Unified CCE and the Unified ICM systems.

### Related Topics

- [Autoconfiguration with Enterprise Gateway, on page 29](#)
- [Gateway Autoconfiguration, on page 2](#)

# Parent/Child Deployments

The different roles of the systems in a Contact Center Gateway deployment are:

## Parent

The Unified ICM system that serves as the network or enterprise routing point. The parent uses the appropriate Contact Center Gateway PGs to communicate to the CTI server on the child Unified CCE or possibly TDM PGs. The parent can route between the children.



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**Note** A parent ICM can have TDM PGs and Gateway PGs.

---

## Child

The Unified CCE system that is set up to function as one or more ACDs (each System PG peripheral functions as its own ACD). The Unified CCE Gateway PG on the parent communicates with the child Unified CCE PG. The child can receive calls routed from the parent, but the child is not aware of any other peripherals attached to the parent. For practical purposes, you can view the child as a standalone Automatic Call Distributor (ACD).



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**Note** Each Unified CCE Peripheral Gateway in a child deployment can connect to only one Unified ICM parent instance. However, one Unified ICM parent instance can support multiple Unified CCE children.

---

When deploying the Contact Center Gateway, you first get the child system working and then integrate the child with the parent system. For reporting purposes, collocate the Unified CCE Gateway PG with the System PG on the child. Collocating the PGs helps to preserve connectivity. If the System PG and the Gateway PG lose connectivity, you can lose reporting data on call activity.

# Gateway Autoconfiguration

Autoconfiguration is a Contact Center Gateway feature that automatically uploads basic configuration data from the child to populate tables on the parent Unified ICM for the corresponding gateway PG. Autoconfiguration is enabled by default. The uploaded tables contain agent, skill group, service, call type, and device information.

When autoconfiguration is enabled, the Configuration Manager on the Unified ICM parent does not permit manual configuration of agents, and skill groups, services entries.

Upon startup, the PG PIM remembers the configuration level (keys) from the last time the PIM obtained configuration information. The PIM then requests current configuration information from the child and applies any configuration changes that were made at the child, while the parent Unified ICM system was disconnected from the child CCE system. While the PIM is connected, it continues to make dynamic configuration changes and also updates the parent database to reflect the changes.

# Gateway Deployment Types

This section discusses the supported Cisco Contact Center Gateway deployment models.

## Multiple Parents with Single Child

This figure shows a deployment where two customers, each running a Unified ICM parent, outsource calls to a provider site running Unified CCE with System PGs. The provider site has two Unified CCE System PGs. Each System PG connects to the respective Unified CCE Gateway PG for its Unified ICM parent. By routing through separate PGS, this deployment prevents a customer from seeing the other customer's data. Each customer provides call treatment (prompting) and queuing using Cisco Unified Customer Voice Portal (Unified CVP) before routing calls to the provider site. The provider site can also queue calls using the Cisco Unified IP IVR (Unified IP IVR) that is connected to the System PG.

For this deployment, the agents are broken up into two peripherals, each on its own PG. If there is local queuing, a separate Unified IP IVR or Unified CVP is required. The provider realizes some economies over having a separate Unified CCE setup for each Unified ICM parent. The provider can use the same Unified CCE CallRouter, Logger, and AW/HDS to handle both customers.

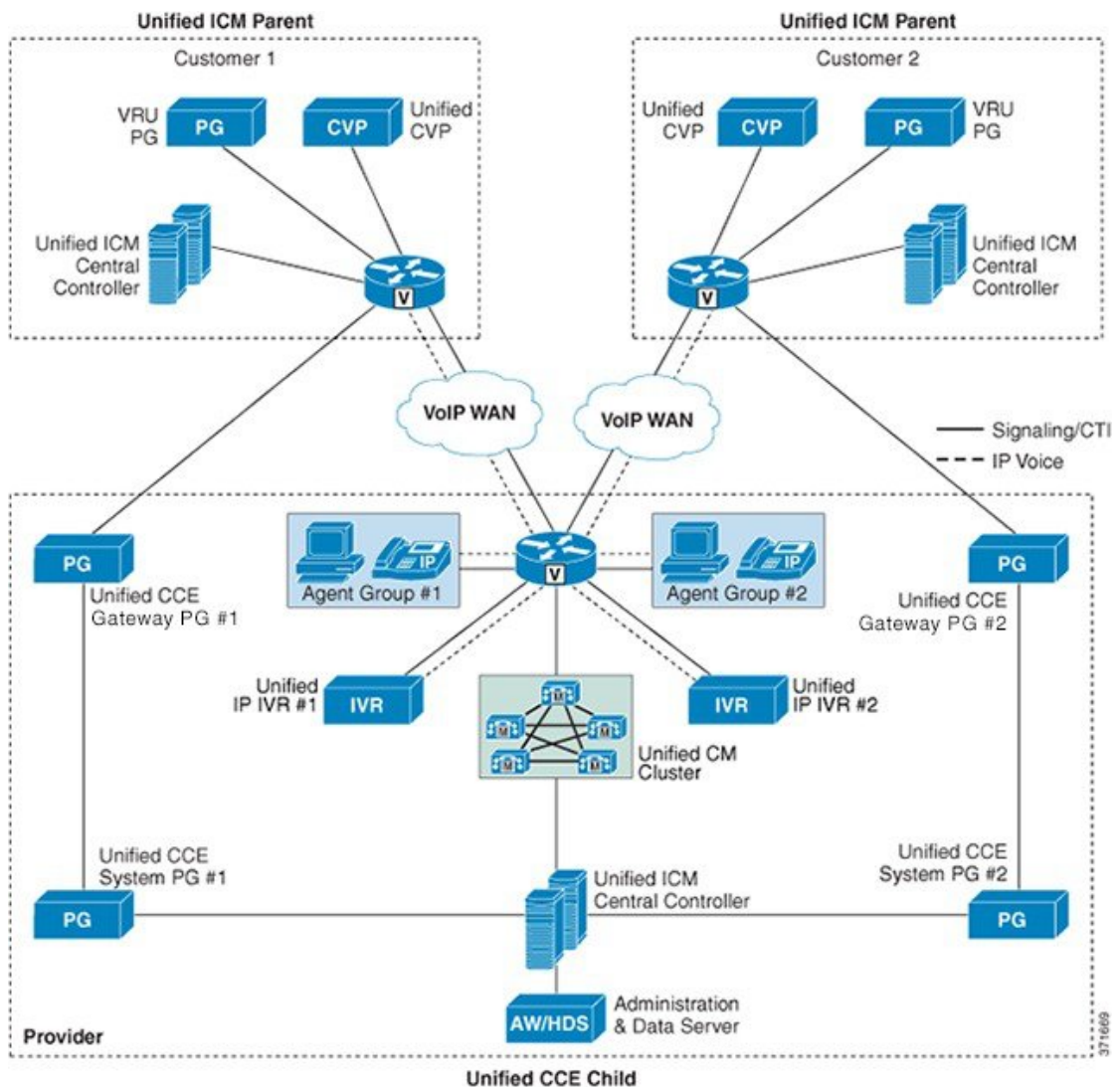


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**Note** You can use either Unified CVP or Unified IP IVR as the Voice Response Unit (VRU) on the child. The illustrated deployment uses Unified IP IVR.

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Figure 1: Two Parents with One Child



**Note** Call types on the Unified CCE child must not span peripherals. Each peripheral on the child requires a separate set of Call Types. This requirement keeps the correlation between the Call Type on the child to a single peripheral on a parent. Otherwise, the Unified ICM parent (Services) sees only a subset of the calls that correspond to the Call Type on the child.

## Single Parent with Multiple IP IVR-Based Children

This deployment shows a Unified ICM parent connected to two Unified CCE children with System PGs through two Unified CCE Gateway PGs. Each Gateway PG can connect to only one System PG.



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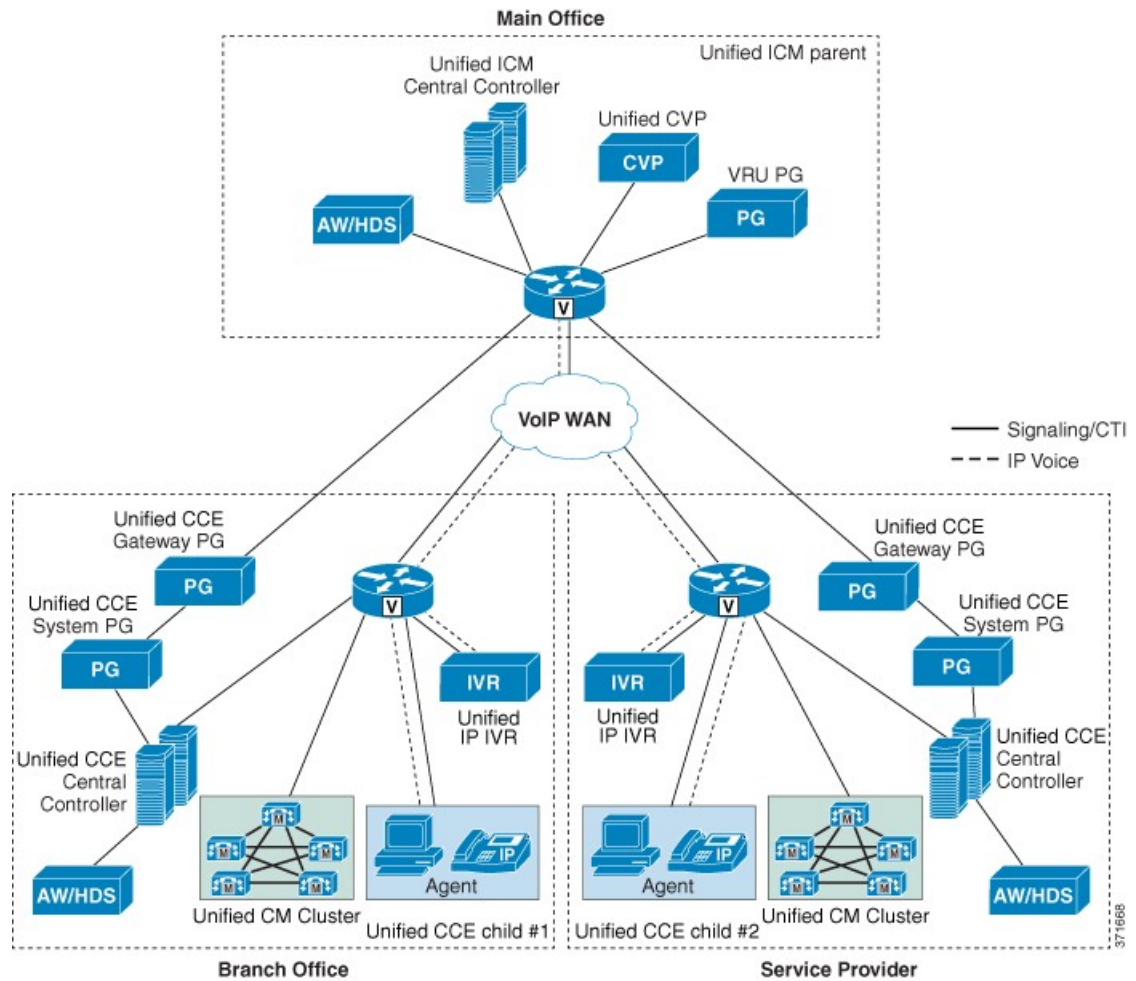
**Note** The Unified CCE child systems can be branch offices or service bureaus.

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This deployment allows translation routing of calls from the Unified ICM parent to either of the two Unified CCE children. The parent treats each child as a separate ACD. In the example shown here, Unified CVP does the network queuing from the Unified ICM parent. This deployment model enables these possibilities:

- The child sites can route incoming calls to itself through Voice Gateways that are not related to the parent site. This local routing ensures continued operations at the call center if the WAN connection is not reliable.
- You can phase-in Unified CCE deployments alongside TDM ACDs. The option to add more Unified CCE child sites enables you to add capacity over time.
- The child sites can post-route and translation route to other child sites through the parent site. These routing options enable transfers and consults between the child sites.
- The parent site can control child sites that are either branch offices or one or more external service providers.

Figure 2: One Parent with Two Children



## Parent Unified CVP Controls Multiple Child Unified CCE Sites

This figure shows a parent Unified ICM system deployed with Unified CVP and its own AW/HDS server. Each distributed site has a complete Unified CCE deployment that loads both the Central Controller and the Unified CCE System PG. There is also a local Administration & Data Server machine for the Unified CCE to perform that site's configuration, scripting, and reporting tasks. The Unified CCE Gateway PG connects the Unified CCE child to the Unified ICM parent.



### Important

Unified CCE also supports CVP. But, information on queued calls at the child CVP is not available at the parent through the Unified CCE Gateway PG. That information is available when the child uses IP IVR. Because that information is not available, the parent cannot use minimum expected delay (MED) over services in its queuing when the child uses CVP.

In this deployment, the distributed Unified CCE systems act as their own local IP ACDs. The child sites have no visibility to any of the other sites. Agents at Child 1 cannot see any of the calls or reports from Child 2.

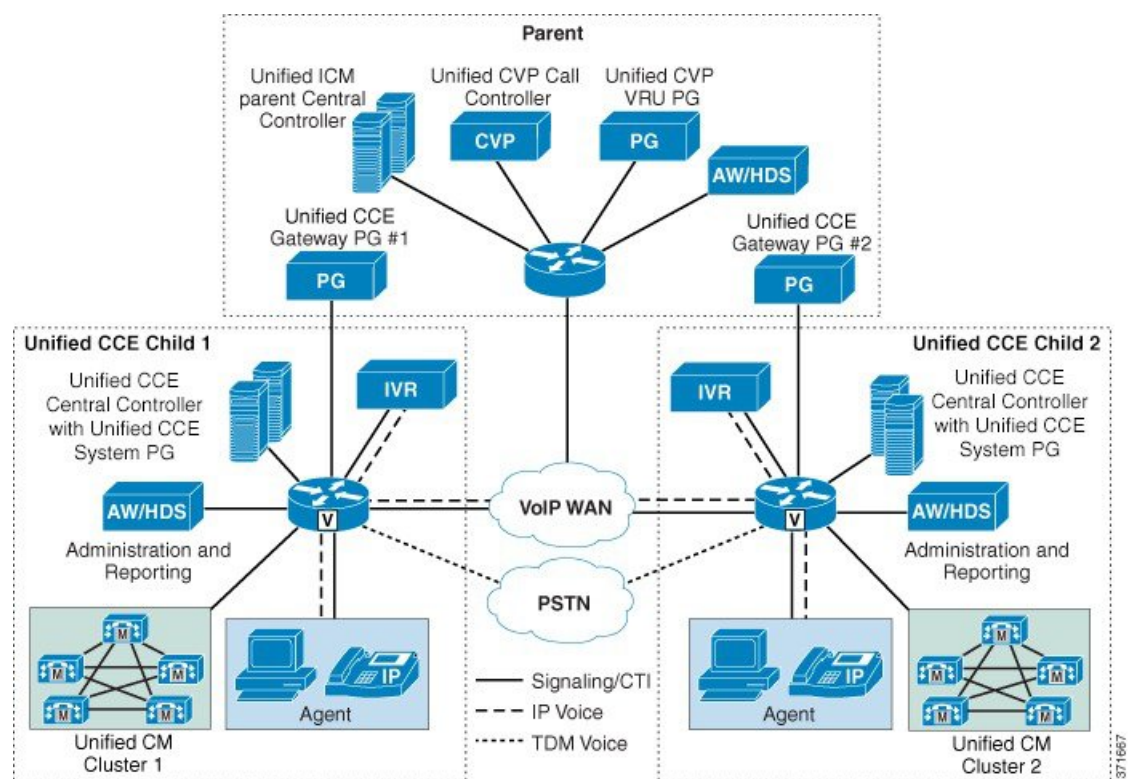


CVP provides a virtual network queue across all the distributed sites controlled by the parent. The parent site has visibility into all the distributed sites and sends the call to the next available agent from the virtual queue.

The Unified CVP at the parent site controls the calls coming into the distributed sites. The parent site's CVP provides call queuing and treatment in the VoiceXML Browser in the voice gateway. If the voice gateway at a child site loses its connection to the parent CVP, the child site uses its IP IVR for a local backup. The local IP IVR also provides local queue treatment when the local agents do not answer calls. For example, the local IP IVR can handle a Reroute On No Answer (RONA) call, rather than sending the call to the CVP to be requeued. But, the child sites cannot queue such calls to another child site.

If you use Unified CVP to queue at the child, this deployment never populates `SkillGroupRealTime.CallsQueuedNow`. However, if IP-IVR is used under System PG, you can see this status. Also, the Parent cannot use any function that depends on queue statistics to operate properly. For example, MED is not accurate since it does not consider queue time on the CVP peripheral.

**Figure 3: Parent Unified CVP Controls Multiple Child Unified CCE Sites**



## Routing in Gateway Deployments

Routing is when a routing client (a PG or NIC) queries the CallRouter for a destination to which to send a call. The different types of routing use and pass different information and target different call destinations.

Before you can route calls to a child, both the parent and child require routing scripts.

### Related Topics

[Create and Schedule Routing Scripts on Child](#), on page 23

[Create and Schedule Routing Scripts on Parent](#), on page 32

[Enterprise Gateway Routing](#), on page 38

[Translation Routing](#), on page 41

[Routing Configuration](#), on page 39

## Call Data Transfer Between Parent and Child

During a call flow, call data passes between the parent and child systems only during the following scenarios:

- Data passes from the child to the parent when the child sends a `ROUTE_REQUEST_EVENT` to the parent. This event happens during a Translation Route dialog or a Post-Route dialog initiated from the child. The child raises the event when the child transfers a call to a route point that the parent controls.
- Data passes from the parent to the child when the parent responds to a `ROUTE_REQUEST_EVENT` with a `ROUTE_SELECT_EVENT`. This event happens during a Translation routing dialog or a Post-Route dialog initiated from the child. This parent raises the event when the parent transfers a call at the child to a route point that the parent controls.
- Data passes from the child to the parent when the child sends a `CALL_DATA_UPDATE_EVENT` after data is updated at the child.

In the parent-to-child or child-to-parent call flow, only a subset of call variables and ECC variables are passed to the call flow. MAPVAR and MAPECC variables (if present) filter all ECC and call variable transfers.

This table lists call data that is transferred between parent and child. Any variables not mentioned here are not transferred. You can only transfer ECC variables that have the same name on both systems. The table does not account for any additional restrictions that MAPVAR and MAPECC might import.

Item	To Parent in Route Request	To Child in Route Select	To Parent from Call Data update and other events
Call Variables 1-10	Yes	Yes	Yes
ECC Variables	Yes	Yes	Yes
ANI	Yes	No	No
User To User Info	Yes	No	No
Dialed Number (DNIS)	Yes	No	No
Caller Entered Digits(CED)	Yes	No	No
Call Wrap Up Data	No	No	Yes

For more information about Unified ICM variables, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>.

## Reporting in Gateway Deployments

There are two levels of reporting in Contact Center Gateway deployments:

- ACD (child)
- Enterprise (parent)

The addition of the Gateway PGs does not affect the reports on the ACD level; you can run Unified CCE reports that accurately reflect the state of the child system.

However, the data that the child system feeds to the parent does not always correlate on both systems. This lack of correlation affects the reports on the enterprise level. Discrepancies can occur due to timing period issues. Discrepancies can also occur because the Contact Center Gateway does not populate certain database fields.

The system cannot report on locally queued calls on a Unified CCE child that uses Unified CVP, so those calls are not reflected in the statistics.

For more information on reporting, see the *Cisco Unified Contact Center Enterprise Reporting User Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-user-guide-list.html>.

## Upgrade Considerations for Gateway Deployments

You can upgrade the parent and child sites independently in a Parent/Child deployment, as long as you stay within the version compatibility bounds. If you are using Unified IP IVR, select a Unified CCE version that is compatible with the Unified Communications Manager version.

See the *Unified CCE Solution Compatibility Matrix* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-device-support-tables-list.html> to determine the correct versions to use.

Consult the following documents for upgrade information as appropriate for your Parent/Child deployment:

Component	Documents
Unified Communications Manager	<a href="https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/tsd-products-support-series-home.html">https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/tsd-products-support-series-home.html</a>
Unified ICM or Unified CCE	<a href="https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html">https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html</a>
Unified CVP	<a href="https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/tsd-products-support-series-home.html">https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/tsd-products-support-series-home.html</a>





## CHAPTER 2

# Cisco Contact Center Gateway Deployment Example

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- [Example Topology, on page 11](#)
- [Example Prerequisites, on page 13](#)
- [Deploy the Child System, on page 13](#)
- [Deploy the Parent System, on page 24](#)
- [Enable Dropping Call Participants from a Conference Call , on page 33](#)

## Example Topology

This chapter provides an example of how to deploy a Cisco Contact Center Gateway. The procedures create a working example of a Parent/Child system. This example introduces you to the concepts and tasks that are involved in a successful deployment.



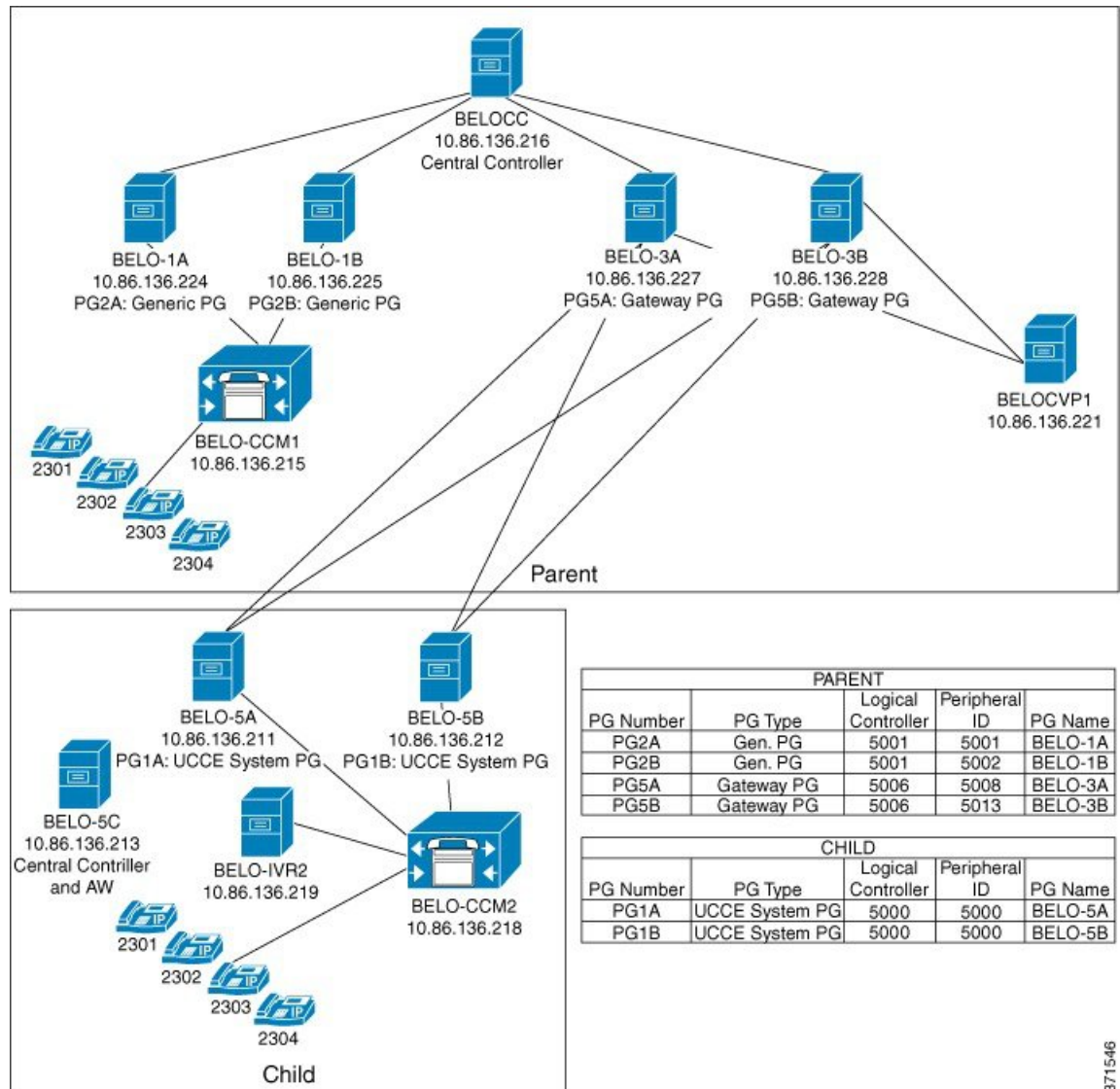
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**Note** The procedures show how to set up and configure one side of the redundant components. Set up and configure the other side on your own.

---

The example is based on the illustrated deployment.

Figure 4: Example Deployment



The Parent site consists of these components:

- Central Controller (BELOCC)
- Redundant Generic PGs, PG2A (BELO-1A) and PG2B (BELO-1B), which interface with the parent Unified Communications Manager (BELO-CCM1)
- Unified Communications Manager (BELO-CCM1), which routes calls to these extensions: DNs 2301-2304
- CVP (BELO-CVP1)
- Redundant Unified CCE Gateway PGs, PG5A (BELO-3A) and PG5B (BELO-3B), which interface with the child redundant System PGs (PG1A and PG1B)

The Child site consists of these components:

- Redundant Unified CCE System PGs, PG1A (BELO-5A) and PG1B (BELO-5B), which interface between the parent redundant Unified CCE Gateway PGs (BELO-3A and BELO-3B) and the Unified Communications Manager (BELO-CCM2)
- Unified Communications Manager (BELO-CCM2), which routes calls to the local extensions (DNs 2301-2304) and to the IP IVR (BELO-IVR2)
- IP IVR (BELO-IVR2)
- A Central Controller and an Administration & Data Server (BELO-5C)

## Example Prerequisites

The example assumes that you:

- Installed the appropriate contact center software on each machine as described in *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html>. The installation places the files into a machine's `\bin` directory.
- Are familiar with using the Domain Manager.
- Installed and configured the Unified Communications Manager.
- Configured the extensions (DNs) from 2301 to 2304.
- Configured the local route points in this table:

Route point	Target
2500	Any available skill group
2501	SG01
2502	SG02

- Added the Facility and the Instance.

## Deploy the Child System

To deploy the example child system, you perform the following tasks:

1. Run the Web Setup Tool to set up the child Administration & Data Server on BELO-5C.
2. Run the Web Setup Tool and ICMDDBA to set up the child Central Controller (CC) on BELO-5C.
3. On the Administration & Data Server, run the Configuration Manager to add the System PGs. This task assigns the Logical Controller IDs (LCID) and the Peripheral IDs (PID) that are required during setup.
4. Run the PG Setup Tool on BELO-5A and BELO-5B to setup PG1A and PG1B, respectively.
5. Install and configure JTAPI, the CTI Server, and a desktop application on the System PGs.
6. Use the Configuration Manager tools to configure the Agents, Skill Groups, Skill Group Members, Dialed Numbers, and Call Types.
7. Use the Script Editor to manage Call Types, and to create and schedule routing scripts.

## Set Up Child Administration & Data Server

To set up the Administration & Data Server, run the Web Setup Tool for the Administration & Data Server on BELO-5C.

### Procedure

---

- Step 1** Run the **Web Setup Tool** on the computer designated as the child Central Controller (BELO-5C).
- Step 2** Click **Instance Management**, then click **Add**. The **Add Instance** dialog appears.
- Step 3** Select **BELO** (the Facility), then **bh03** (the Instance to add).
- Step 4** Click **Save**.
- Step 5** Select **Administration & Data Server**, then click **Add**. The **Add Administration & Data Server** dialog appears.
- Step 6** Set the deployment model.
- Select **bh03** (the Instance) from the drop-down menu.
  - Select **Enterprise** as the deployment type.
  - Select **Small to Medium** for the deployment size.
  - Click **Next**.
- Step 7** Set the role for the Administration & Data Server.
- Select **Administration Server** and **Real-time Reporting**.
  - Click **Next**.
- Step 8** Set the Administration & Data Server connectivity.
- Select **Primary Administration & Data Server**.
  - Enter **BELO-5C** as the **Secondary Administration & Data Server**.  
You use the same Administration & Data Server as the primary for the secondary since there is only one.
  - Enter **BELO-5C-Site1** for the site name.
  - Click **Next**.
- Step 9** Set the database and options by accepting the default settings, then click **Next**.
- Step 10** Set the Central Controller connectivity.
- Enter **BELO-5C** into each name field.
  - Ensure that the Central Controller Domain is set to **BELODC.cisco.com**.
  - Select **Side A Preferred**.
  - Click **Next**.  
The Summary window appears.
- Step 11** Verify that all settings are correct, then click **Next**.  
The system configures the Administration & Data Server. Then the **Administration & Data Server** window appears and displays the Administration & Data Server information.
-



## Set Up Child Central Controller

To set up the child Central Controller, you first run the Web Setup Tool for the CallRouter and then run the ICMDDBA to create the Logger database. You perform both tasks on the Central Controller virtual machine (BELO-5C).

### Set Up Child CallRouter

Run the Web Setup Tool on BELO-5C.

#### Procedure

---

- Step 1** Run the Web Setup Tool.
- Step 2** Click **Routers**.
- Step 3** Click **Add** to set up the CallRouter.  
The **Deployment** dialog appears.
- Step 4** On the **Deployment** dialog:
- a) Ensure that the **Instance** is set to **bh03**.
  - b) Select **Side A**.
  - c) Select the appropriate **Fault Tolerance** mode, either **Simplex** or **Duplex**.
  - d) Click **Next**.
- The **Router Connectivity** dialog appears.
- Step 5** Ensure all the fields indicate **BELO-5C**, then click **Next**.  
The **Enable Peripheral Gateways** dialog appears.
- Step 6** Enter **1** to indicate the number of PGs that you are deploying, then click **Next**.  
The **Router Options** dialog appears.
- Step 7** Leave all settings at the default (nothing selected) and click **Next**.  
The **Summary** dialog appears.
- Step 8** Ensure that the Router summary is correct, then click **Finish**.  
When the CallRouter setup completes, the **Router successfully saved** window appears.
- 

### Set Up Child Logger

To set up the child Logger on BELO-5C, you create a Logger database and then run the Web Setup Tool.

#### Procedure

---

- Step 1** Choose **Start > All Programs > Unified ICM-CCE Tools > ICMDDBA**.
- Step 2** Create the Logger database.  
For detailed information on creating a Logger database, see the *Administration Guide for Cisco Unified Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-maintenance-guides-list.html>.
- Step 3** Run the Web Setup Tool.

- Step 4** Click **Loggers**.  
The **Logger** dialog appears.
- Step 5** Click **Add** to set up the Logger.  
The **Deployment** dialog appears.
- Step 6** On the **Deployment** dialog:
- Ensure that the **Instance** is set to **bh03**.
  - Ensure that the **Logger Type** is set to **Enterprise**.
  - Select **Side A**.
  - Select the appropriate **Fault Tolerance** mode, either **Simplex** or **Duplex**.
  - Click **Next**.
- The **Central Controller Connectivity** dialog appears.
- Step 7** Ensure that the **Router Private Interfaces** (Side A and Side B) and the **Logger Private Interfaces** (Side A and Side B) are set to **BELO-5C**. Then, click **Next**.  
The **Additional Options** dialog appears.
- Step 8** Leave the default settings and click **Next**.  
The **Summary** dialog appears.
- Step 9** Ensure that the Logger summary is correct, then click **Finish**.  
When the Logger setup completes, the **Logger successfully saved** window appears.

---

### What to do next

You have added an Administration & Data Server and a Central Controller to the Child system. Exit the Web Setup Tool. On the child Administration & Data Server, open the ICM Service Control and start the distributor, logger, and router processes.

## Add System PGs on Child Administration & Data Server

On the Administration & Data Server, run the Configuration Manager to add the System PGs.

### Configure System PGs

Use the Configuration Manager tools to add and configure the System PGs.

#### Procedure

---

- Step 1** Choose **Start > All Programs > Cisco Unified CCE Tools > Administration Tools > Configuration Manager**.
- Step 2** Start the **PG Explorer Tool** and click **Retrieve**.
- Step 3** Click **Add PG** to create both the Peripheral Gateway and the Peripheral.
- Enter **UCCE** for the **Name**.
  - Select **UCCE System** for the **Client Type**.
  - If no desk settings are set, set them and click **OK**.  
The **Agent Desk Settings List Tool** appears.
  - Click **Add**.  
The **Attribute** tab appears.

- e) Enter **default** for the **Name**.
- f) Leave all other settings at their defaults and click **Save**.
- g) Close the **Agent Desk Settings List Tool**.

**Step 4** Go back to the **PG Explorer Tool**.

- a) Select **UCCE-1** as the **Peripheral**.
- b) On the **Peripheral** tab, set the **Default Desk Settings** to **default**.
- c) On the **Agent Distribution** tab, click **New**.
- d) Set the **Administration & Data Server site name** to **BELO-5C-Site 1** and leave all other settings at their defaults.
- e) On the **Routing Client** tab, enter **UCCE\_RC** for the **Name** and leave all other settings at their defaults.
- f) Click **Save**.  
The Logical Controller tab now indicates the Logical Controller ID (5000) and the Physical Controller ID (5000).

---

### What to do next

The Central Controller setup and configuration is complete. You can now install and set up the Peripheral Gateways to communicate with the Central Controller.

## Add Instances on Child System

Use the Web Setup Tool to add the Instance on the child System PG virtual machines BELO-5A (PG1A) and BELO-5B (PG1B).

### Procedure

---

- Step 1** Enter **http://BELO-5B/setup** (or BELO-5A, for the other side) and log in to the Web Setup Tool to add the Instance.  
The main **Web Setup Tool** window appears.
  - Step 2** Click **Instance Management**, then click **Add**.  
The **Add Instance** dialog appears.
  - Step 3** Select **BELO** (the Facility) and then **bh03** (the Instance to add).
  - Step 4** Click **Save**.
  - Step 5** Click **Log Out**.
- 

## Set Up System PGs

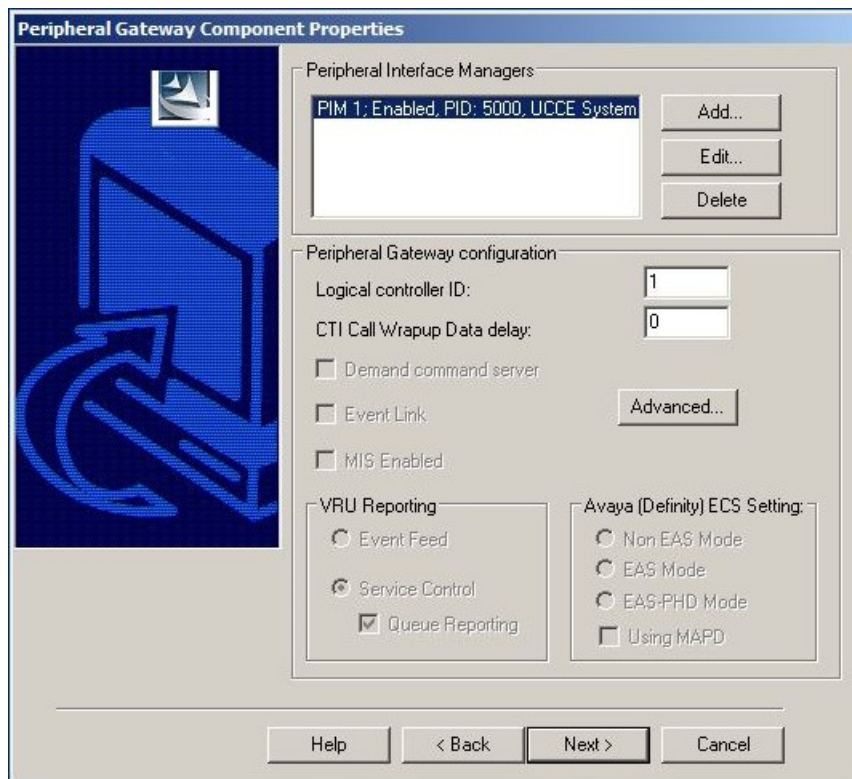
Use the PG Setup Tool to add and configure the System PGs. This example procedure sets up Side B of PG1.

### Procedure

---

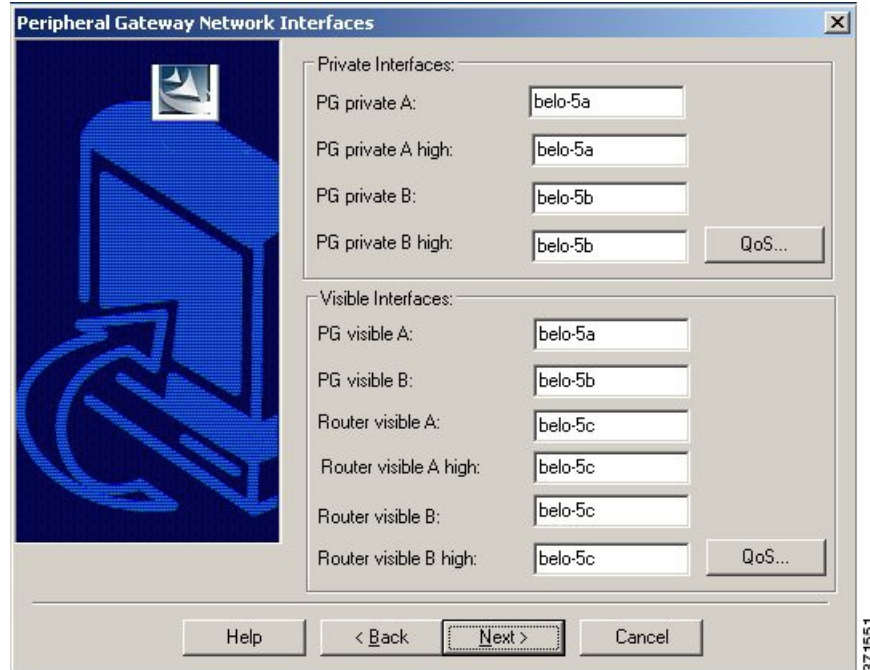
- Step 1** Click **PG Setup Tool**.  
The main PG Setup Tool window appears.

- Step 2** Click **Add** in the **Instance Component** section.  
The **ICM/CCEComponent Selection** dialog appears.
- Step 3** Select **Peripheral Gateway**.  
The **Peripheral Gateway Properties** dialog appears.
- Step 4** Ensure that all check boxes in the **Node Manager Properties** section are checked.
- Step 5** Ensure that **PG1** and the appropriate side are selected in the **PG Node Properties** dialog.
- Step 6** Select **UCCE System** for the **Client Type**, then click **Add**.
- Step 7** Click **Next**.  
The **Peripheral Gateway Component Properties** dialog appears.
- Step 8** Click **Add**.  
The **Add PIM** dialog appears.
- Step 9** Select **UCCE System** and **PIM 1**, then click **OK**.  
The **UCCE System Configuration (PIM1)** dialog appears.
- Step 10** Check **Enabled**.
- Step 11** Add the **PID** of **5000**.
- Step 12** Enter an **Agent Extension Length** of **4**.
- Step 13** Set the **Service** to **10 . 86 . 136 . 218** (the IP address of the Unified Communications Manager BELO-CCM2).
- Step 14** Enter **BELO** for the **User Id** (an application user created on the Unified Communications Manager).
- Step 15** Enter **cisco** for the **User password** (set in the Unified Communications Manager).
- Step 16** Click **OK**.  
You return to the **Peripheral Gateway Component Properties** dialog.

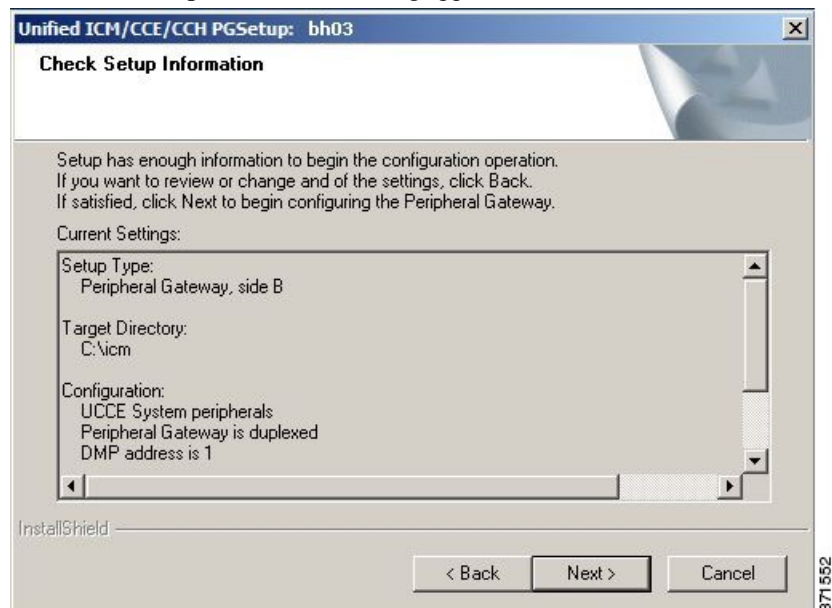


- Step 17** Change the **LCID** to **5000** (the same LCID that you used in the PG Explorer Tool).

- Step 18** Click **Next**.  
The **Device Management Protocol Properties** dialog appears.
- Step 19** Leave all settings at their default values and click **Next**.  
The **Peripheral Gateway Network Interfaces** dialog appears.



- Step 20** Set the PG fields to **BELO-5A** and **BELO-5B**, as applicable.
- Step 21** Set the Router fields to **BELO-5C**.
- Step 22** Click **Next**.  
The **Check Setup Information** dialog appears.



- Step 23** If all the settings are correct, click **Next**.

- After the System PG setup completes, the **Setup Complete** dialog appears.
- Step 24** Click **Finish**.  
You return to the main PG Setup Tool window.
- Step 25** Click **Exit Setup**.
- Step 26** Go to the Unified Communications Manager, then download and install the JTAPI plugin for Windows on the System PGs.
- Select **Application > Plugins**.
  - Click **Find**.
  - Next to **Cisco JTAPI for Windows**, click **Download**.
  - Install the downloaded file, `ciscojtapiclient.exe`, accepting all the default settings.
- Step 27** Start the PG1A and PG1B services on each System PG (BELO-5A and BELO-5B).
- 

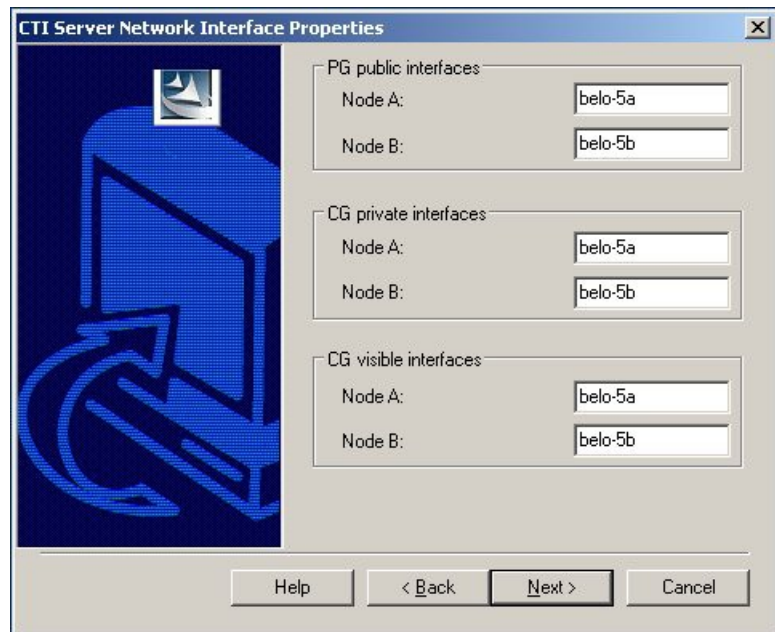
## Install CTI Server on Child System

Use the PG Setup Tool to install CTI Server on the System PGs (BELO-5A and BELO-5B). In this section, you install CTI Server on side B of PG1.

### Procedure

---

- Step 1** Using Service Control, stop the PG service.
- Step 2** Start the PG Setup Tool.  
The **Cisco Unified ICM/Contact Center Enterprise Components Setup** dialog appears.
- Step 3** Click **Add** in the **Instance Components** section.  
The **ICM/CCE Component Selection** dialog appears.
- Step 4** Select **CTI Server**.  
The **CTI Server Properties** dialog appears.
- Step 5** Check **Duplexed CTI Server** and ensure that all the other check boxes are checked as well.
- Step 6** Select **CG 1** as the **CG Node ID**.
- Step 7** Enter **1** for the **ICM system ID** (the same as the Device Management Protocol (DMP) and the PG ID).
- Step 8** Click **Next**.  
The **CTI Server Component Properties** dialog appears.
- Step 9** Leave the default port setting of **43147**, then click **Next**.  
The **Network Interface Properties** dialog appears.



- Step 10** Enter **BELO-5A** and **BELO-5B** as applicable, then click **Next**.  
The **Check Setup Information** dialog appears.
- Step 11** Check that all settings are correct, then click **Next**.  
The **Setup Complete** dialog appears.
- Step 12** Click **Finish**.  
You return to the main PG Setup window.
- Step 13** Click **Exit Setup**.
- Step 14** Start the PG and CG services using the ICM/CCE Service Control application and check to ensure that they are running properly.

## Install Desktop Application on System PGs

You can install a desktop application on the PGs to enable testing. You can use any desktop application (CTI OS, or custom desktops) for this purpose.

## Configure Agents on Child Central Controller

Use the Configuration Manager Agent Explorer tool to configure agents on the child Central Controller.

### Procedure

- Step 1** Start the **Agent Explorer** tool.
- Step 2** On the main window of the Agent Explorer tool, click **Retrieve**.
- Step 3** Click **Add Agent**.  
The **Agent** tab appears.

- Step 4** Complete all the fields except the **Password** and the **Peripheral Name** fields. The agent name information appears in the list, as with all Explorer tools.
  - Step 5** Add at least three agents.
  - Step 6** Save your work and close the Agent Explorer tool.
- 

## Configure Skill Groups on Child Central Controller

Use the Configuration Manager Skill Group Explorer Tool to configure skill groups SG01 and SG02 on the child Central Controller.

### Procedure

---

- Step 1** Start the **Skill Group Explorer Tool**.
  - Step 2** On the main window of the Skill Group Explorer Tool, click **Retrieve**.
  - Step 3** Click **Add Skill Group**.  
The **Skill Group** tab appears.
  - Step 4** Complete all the fields and click **OK**.  
The skill group name appears in the list, as with all Explorer tools.
  - Step 5** Select the **Skill Group Member** tab and click **Add**.  
The **Add Skill Group Member** dialog appears.
  - Step 6** Select the agents to add to the skill group, then click **OK**.  
The agents become members of the skill group.
  - Step 7** Select the skill group in the tree list, then click **Add Route**.  
The **Route** tab appears.
  - Step 8** Provide the **Route Name** and click **Save**.  
The route name appears in the tree list and the skill group is added to the peripheral.
  - Step 9** Add one more skill group.
  - Step 10** Save your work and close the Skill Group Explorer Tool.
- 

## Configure Dialed Numbers on Child Central Controller

Use the Configuration Manager Dialed Number/Script Selector List Tool to configure dialed numbers on the child Central Controller.

### Procedure

---

- Step 1** Start the **Dialed Number/Script Selector List Tool**.
- Step 2** On the main window of the Dialed Number/Script Selector List Tool, click **Retrieve**.
- Step 3** Click **Add**.  
The **Dialed Number Attributes** tab appears.
- Step 4** Select **UCCE\_RC** as the **Routing Client**.



- Step 5** Select **Cisco\_Voice** for the **Media Routing Domain**.
- Step 6** Set the **Dialed Number String/Script Selector** to **2500** (the route point set up on the Unified Communications Manager).
- Step 7** Set **UCCE\_RC\_2500** as the **Name**, then select **bh03** as the **Customer** setting.
- Step 8** Check **Permit Application Routing** on the route points controlled by the Parent (the Post route points and the Translation route points).  
This option provides the link between the Parent and the Child. The option gives the Parent visibility to the Dialed Number so that the Parent can handle the DN.
- Step 9** Click **Save**.  
The dialed number appears in the tree list.
- Step 10** Add two more dialed numbers (one for each skill group).  
When complete, you have the following DNs:
- 2500, which is named UCCE\_RC\_2500 and connects to all the skill groups.
  - 2501, which is named UCCE\_RC\_2501 and connects to SG01.
  - 2502, which is named UCCE\_RC\_2502 and connects to SG02.
- Step 11** Save your work and close the Skill Group Explorer Tool.
- 

## Configure Call Types on Child Central Controller

Use the Configuration Manager Call Type List tool to configure call types on the child Central Controller.

### Procedure

---

- Step 1** Start the Call Type List tool.
- Step 2** On the main window of the Call Type List tool, click **Retrieve**.
- Step 3** Click **Add**.  
The **Call Type Attributes** tab appears.
- Step 4** Set **internal\_2500CT** as the **Name**, then select **bh03** as the **Customer** setting.
- Step 5** Click **Save**.  
The call type appears in the tree list.
- Step 6** Add two more call types (internal\_2501CT and internal\_2502CT).  
When complete, you have the following call types: internal\_2500CT, internal\_2501CT, and internal\_2502CT.
- Step 7** Save your work and close the Call Type List tool.
- 

## Create and Schedule Routing Scripts on Child

A routing script determines how a call is handled by establishing the routing rules. In this section, you create a routing script and schedule it. You can then log in agents and have them make and accept calls.

For more information about scripting, see *Scripting and Media Routing Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-user-guide-list.html>.

### Procedure

- 
- Step 1** Start the Script Editor application on the Administration & Data Server.
- Step 2** Create the first routing script, named **internal\_2500**.
- Set the **Skill Group** node to **UCCE\_1.Cisco\_Voice.SG01** and **UCCE\_1.Cisco\_Voice.SG02**.
  - Set the **Queue to Skill Group** node to **UCCE\_1.Cisco\_Voice.SG01** and **UCCE\_1.Cisco\_Voice.SG02**.
  - Set the **Wait** node to **10** seconds.
- Step 3** Save the script.
- Step 4** Choose **Script > Call Type Manager**.  
The **Call Type Manager** appears.
- Step 5** Select **Media Routing Domain** and **Dialed Number**.  
This setting associates the call type with the dialed number.
- Step 6** Click **Add**.  
The **Dialed Number Entry** dialog appears.
- Step 7** Associate the dialed number with the call type by selecting **internal\_2500CT** (the call type), then click **OK**.
- Step 8** To schedule the routing script, click the **Schedule** tab.
- Step 9** Click **Add**.  
The **Call Type Scheduling** dialog appears.
- Step 10** Accept all the default settings on each of the rest of the tabs, then click **OK**.  
You return to the **Call Type Manager**.
- Step 11** Click **OK**.  
You now have a system that allows you to log in agents and have them make and accept calls.
- 

## Deploy the Parent System

To deploy the example parent system, you perform the following tasks:

- Run the Web Setup Tool to set up the Administration & Data Server on BELO-CC.
- Run the Web Setup Tool and ICMDDBA to set up the Central Controller (CC) on BELO-CC. You use the Web Setup Tool to set up the CallRouter and Logger and the ICMDDBA to create the Logger database.
- On the Administration & Data Server, run the Configuration Manager to add the Enterprise Gateway PGs (BELO-3A and BELO-3B). This step assigns the Logical Controller IDs (LCID) and the Peripheral IDs (PID) required during setup.
- Run the PG Setup Tool on BELO-3A and BELO-3B to setup PG5A and PG5B, respectively.
- Configure and set up the Generic PGs. Install and configure JTAPI, the CTI Server, and a desktop application on the generic PG.
- Use the Configuration Manager tools to configure the Agents, Skill Groups, Skill Group Members, Dialed Numbers, and Call Types.
- Use the Script Editor to manage Call Types, and to create and schedule routing scripts.

## Set Up Parent Administration & Data Server

To set up the Administration & Data Server, run the Web Setup Tool for the Administration & Data Server on BELO-CC.

Follow the same procedure as [Set Up Child Administration & Data Server, on page 14](#).

## Set Up Parent Central Controller

To set up the parent Central Controller, you first run the Web Setup Tool for the CallRouter and then run the ICMDDBA to create the Logger database. You perform both tasks on the Central Controller virtual machine (BELO-CC).

## Set Up Parent CallRouter

Run the Web Setup Tool on BELO-CC.

Follow the same procedure as [Set Up Child CallRouter, on page 15](#).

## Set Up Parent Logger

To set up the parent Logger on BELO-CC, you create a Logger database and then run the Web Setup Tool.

### What to do next

You have added an Administration & Data Server and a Central Controller to the Parent system. Exit the Web Setup Tool. On the parent Administration & Data Server, open the ICM Service Control and start the distributor, logger, and router processes.

Follow the same procedure as [Set Up Child Logger, on page 15](#).

## Add Enterprise Gateway PGs on Parent Administration & Data Server

On the Administration & Data Server, run the Configuration Manager to add the Enterprise Gateway PGs.

## Configure Enterprise Gateway PGs

Use the Configuration Manager tools to add and configure the Enterprise Gateway PGs.

### Procedure

- 
- |               |   |
|---------------|---|
| <b>Step 1</b> | Select <b>Start &gt; All Programs &gt; Cisco Systems, Inc. &gt; Administration &amp; Data Server Tools &gt; Configuration Manager</b> .                       |
| <b>Step 2</b> | Start the <b>PG Explorer Tool</b> and click <b>Retrieve</b> .   |
| <b>Step 3</b> | Click <b>Add PG</b> to create both the Peripheral Gateway and the Peripheral.<br>a) Enter <b>ACMI</b> for the <b>Name</b> .<br>b) Select <b>Client Type</b> . |
| <b>Step 4</b> | Go back to the <b>PG Explorer Tool</b> .<br>a) Select <b>ACMI-1</b> as the <b>Peripheral</b> .  |

- b) On the **Agent Distribution** tab, click **New**.
- c) Set the **Administration & Data Server site name** to **BELO-CC-Site 1** and leave all other settings at their defaults.
- d) On the **Routing Client** tab, enter **ACMI-1\_RC** for the **Name** and leave all other settings at their defaults.
- e) Click **Save**.  
The **Logical Controller** tab now indicates the Logical Controller ID (5006), the Physical Controller ID (5006), and the Peripheral ID(5000).

---

## Add Instance on Parent System

Use the Web Setup Tool to add the Instance on the parent Enterprise Gateway PG virtual machines BELO-3A (PG5A) and BELO-3B (PG5B).

### Procedure

- Step 1** Enter **http://BELO-3B/setup** (or BELO-3A, for the other side) and log in to the Web Setup Tool to add the Instance.  
The main **Web Setup Tool** window appears.
- Step 2** Click **Instance Management**, then click **Add**.  
The **Add Instance** dialog appears.
- Step 3** Select **BELO** (the Facility) and then **bh01** (the Instance to add).
- Step 4** Click **Save**.
- Step 5** Click **Log Out**.

---

## Set Up Enterprise Gateway PGs

Use the PG Setup Tool to set up the Enterprise Gateway PG virtual machines BELO-3A (PG5A) and BELO-3B (PG5B).

### Procedure

- Step 1** Click **PG Setup Tool**.
- Step 2** Click **Add** in the **Instance Component** section.  
The **ICM/CCE Component Selection** dialog appears.
- Step 3** Select **Peripheral Gateway**.  
The **Peripheral Gateway Properties** dialog appears.
- Step 4** Ensure that all check boxes in the **Node Manager Properties** section are checked.
- Step 5** Ensure that **PG5** and the appropriate side are selected in the **PG Node Properties** dialog.
- Step 6** Select **UCC Enterprise Gateway** for the **Client Type**, then click **Add**.
- Step 7** Click **Next**.  
The **Peripheral Gateway Component Properties** dialog appears.
- Step 8** Click **Add**.

The **Add PIM** dialog appears.

- Step 9** Select **UCCE Enterprise Gateway** and **PIM 1**, then click **OK**.  
The **UCCE Enterprise Gateway Configuration (PIM1)** dialog appears.
- Step 10** Check **Enabled**.

**Note** The Peripheral ID is for Unified CCE and is set based on your system configuration.

**Note** During the installation of the Unified CCE Gateway PG on a Unified CCE child, the child System PG's Peripheral ID is read from the parent Unified ICM's PG\_ICID registry variable.

- Step 11** Add the **PID** of **5008** for the UCCE Enterprise Gateway PG on the Parent.
- Step 12** Enter **BELO-5A** for the System PGA name.
- Step 13** Enter **42027** for the System PGA port (the CTI Server port).
- Step 14** Enter **BELO-5B** for the System PGB name.
- Step 15** Enter **43027** for the System PGB port (the CTI Server port).
- Step 16** Enter **5000** for the Child System PG **PID**.
- Step 17** Click **OK**.  
You return to the **Peripheral Gateway Component Properties** dialog.
- Step 18** Change the **LCID** to **5006** (the same LCID that you used in the PG Explorer Tool).
- Step 19** Click **Next**.  
The **Device Management Protocol Properties** dialog appears.
- Step 20** Leave all settings at their default values and click **Next**.  
The **Peripheral Gateway Network Interfaces** dialog appears.
- Step 21** Set the PG fields to **BELO-3A** and **BELO-3B**, as applicable.
- Step 22** Set the Router fields to **BELO-CC**.
- Step 23** Click **Next**.  
The **Check Setup Information** dialog appears.
- Step 24** If all the settings are correct, click **Next**.  
The Enterprise Gateway PGs are set up.

- Step 25** Click **Finish**.  
You return to the main PG Setup Tool window.
- Step 26** Click **Exit Setup**.
- Step 27** Start the PG5A and PG5B services on each Enterprise Gateway PG (BELO-3A and BELO-3B).
- 

## Configure and Set up Generic PGs

You have set up the Systems PGs and the Enterprise Gateway PGs. Use the same tools to set up the Generic PGs (PG2A on BELO-1A and PG2B on BELO-1B). You can find the necessary information in the illustration of the example topology.

### Related Topics

[Example Topology](#), on page 11

## Install CTI Server on Parent System

Use the PG Setup Tool to install CTI Server on the Generic PGs (PG2A and PG2B).

### Procedure

---

- Step 1** Using Service Control, stop the PG service.
- Step 2** Start the PG Setup Tool.  
The **Cisco Unified ICM/Contact Center Enterprise Components Setup** dialog appears.
- Step 3** Click **Add** in the **Instance Components** section.  
The **ICM/CCE Component Selection** dialog appears.
- Step 4** Select **CTI Server**.  
The **CTI Server Properties** dialog appears.
- Step 5** Check **Duplexed CTI Server** and ensure that all the other check boxes are checked as well.
- Step 6** Select **CG 2** as the **CG Node ID**.
- Step 7** Enter **2** for the **ICM system ID** (the same as the Device Management Protocol (DMP) and the PG ID).
- Step 8** Click **Next**.  
The **CTI Server Component Properties** dialog appears.
- Step 9** Leave the default port setting of **42147**, then click **Next**.  
The **Network Interface Properties** dialog appears.
- Step 10** Enter **BELO-1A** and **BELO-1B** as applicable, then click **Next**.  
The **Check Setup Information** dialog appears.
- Step 11** Check that all settings are correct, then click **Next**.  
The **Setup Complete** dialog appears.
- Step 12** Click **Finish**.  
You return to the main PG Setup window.
- Step 13** Click **Exit Setup**.

- Step 14** Start the PG and CG services using the ICM/CCE Service Control application and check to ensure that they are running properly.
- 

## Install Desktop Application on Generic PGs

You can install a desktop application on the PGs to enable testing. You can use any desktop application (Cisco Finesse, CTI OS, or custom desktops) for this purpose.

## Autoconfiguration with Enterprise Gateway

For Contact Center Gateway deployments with a Unified CCE child, you configure Call Types as Services. By default, autoconfiguration is enabled in the Peripheral tab of the PG Explorer. Autoconfiguration takes effect when the PG starts.

When autoconfiguration occurs between the parent Unified ICM and the child Unified CCE, the following Unified ICM tables are populated:

1. Agent/Person
2. Skill Group
3. Service



---

**Note** Autoconfiguration of like entities occur on the parent for Agent and Skill Group, but not for Call Type (child) and Service (parent).

---

Default skill groups on the child, which are not viewable, get created as real skill groups on the parent. Activity done in the default skill group on the child shows up in these real skill groups on the parent.

Set up the Service members on the parent. To set up the service members for any given service, examine the script for a call type on the child. Note the skill groups to which the script offers the call. On the parent, use that list of skill groups to make service members for that Service.



---

**Note** Autoconfiguration does not provide complete configuration for Unified ICM software. Autoconfiguration only configures agents, services, skill groups, and skill group members. You must set up many other elements, such as dialed numbers, scripts, peripheral targets, and routes, manually.

---

If any error occurs during autoconfiguration, the keys on the parent do not update. The Unified CCE PIM uploads the entire child configuration for comparison every time that the PIM starts until no configuration errors are encountered.

Configuration changes on the child Unified CCE do not get correctly reflected on the parent while the Unified CCE Gateway PG is stopped. Manually update the parent with any changes to the peripheral numbers (of agents or skill groups) on the child.



**Note** In Parent/Child deployment type, the agent name is automatically configured for the customer. Spaces are not allowed in agent IDs. In a specific scenario, if a child agent is created with a space or a "-", in either the First Name or Last Name field, the name are not created on the parents.

## Configure Dialed Numbers on Parent Central Controller

Use the Configuration Manager Dialed Number/Script Selector List Tool to configure dialed numbers on the parent Central Controller.

### Procedure

- 
- Step 1** Start the **Dialed Number/Script Selector List Tool**.
- Step 2** On the main window of the Dialed Number/Script Selector List Tool, click **Retrieve**.
- Step 3** Click **Add**.  
The **Dialed Number Attributes** tab appears.
- Step 4** Select **ACMI\_RC** as the **Routing Client**.
- Step 5** Select **Cisco\_Voice** for the **Media Routing Domain**.
- Step 6** Set the **Dialed Number String/Script Selector** to **2500** (the route point set up on the Unified Communications Manager).
- Step 7** Set **ACMI\_RC\_2500** as the **Name**, then select **bh01** as the **Customer** setting.
- Step 8** Check **Permit Application Routing** on the route points controlled by the child (the Post route points and the Translation route points).  
This option is enabled on the child system for those route points where the requests are re-directed towards CTI server / parent ACMI PG, instead of the child Router.
- Step 9** Click **Save**.  
The dialed number appears in the tree list.
- Step 10** Add two more dialed numbers (one for each skill group).  
When complete, you have the following DNs:
- 2500, which is named ACMI\_RC\_2500 and connects to all the skill groups.
  - 2501, which is named ACMI\_RC\_2501 and connects to SG01.
  - 2502, which is named ACMI\_RC\_2502 and connects to SG02.
- Step 11** Save your work and close the Skill Group Explorer Tool.
- 

## Configure Call Types on Parent Central Controller

Use the Configuration Manager Call Type List tool to configure call types on the parent Central Controller.



## Procedure

---

- Step 1** Start the Call Type List tool.
- Step 2** On the main window of the Call Type List tool, click **Retrieve**.
- Step 3** Click **Add**.  
The **Call Type Attributes** tab appears.
- Step 4** Set **internal\_2500CT** as the **Name**, then select **bh03** as the **Customer** setting.
- Step 5** Click **Save**.  
The call type appears in the tree list.
- Step 6** Add two more call types (internal\_2501CT and internal\_2502CT).  
When complete, you have the following call types: internal\_2500CT, internal\_2501CT, and internal\_2502CT.
- Step 7** Save your work and close the Call Type List tool.
- 

## Link Configuration from Parent to Child

While some autoconfiguration occurs between the Parent and the Child systems, you must perform other setup tasks manually for call flow to work properly. Set up the components necessary to link the Parent and the Child systems.

These setup tasks include configuring:

- Trunk Group
- Network Trunk Group
- Routes
- Peripheral targets
- Labels
- Routing clients for the autoconfigured Services
- Route points
- Dialed numbers (with Permit Application Routing enabled)
- Autoconfigured Skill Groups as Service members
- Autoconfigured Services (from the Child call types)

Use the Script Editor to create and schedule routing scripts.

## Configure Other Elements on Parent

Use the appropriate tools to set up these additional elements.



---

**Note** See the Configuration Manager online help and the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html> for additional information.

---

## Procedure

---

- Step 1** Use the Network Trunk Group Explorer to configure a Network Trunk Group on the Enterprise Gateway PG.
- Step 2** Use the Network Trunk Group Explorer to set up a Trunk Group on the Enterprise Gateway PG.
- Step 3** Configure Routes, Peripheral Targets, and Labels for the Enterprise Gateway PG.
- Configure the routes with either the Route Bulk tool, Agent Explorer, Skill Group Explorer, Service Explorer, Service Array Explorer, or Translation Route Explorer.
  - Configure the peripheral targets with the appropriate explorer tool for the services, service arrays, skill groups, translation routes, agents, announcements, or network VRUs.
  - Configure the labels with either the Label Bulk tool or the Label List tool.
- Step 4** Configure the parent Unified IP IVR routing clients for the autoconfigured services (child call types). The routing client can be a public network interexchange carrier (IXC) or a A private network peripheral. Each routing client must be associated with an interface controller, such as a NIC or a PG.
- Step 5** In Unified Communications Manager, configure the corresponding route points that match the labels. Add the labels to the child as dialed numbers with **Permit Application Routing** enabled.
- Step 6** Add autoconfigured Skill Groups as Service Members.
- Note** If you do not add these Service Members, then you cannot use MED.
- Step 7** Create the translation routes, routes, peripheral targets, and labels for the Unified CCE Gateway PG and the parent routing clients.
- Note** To pass call context from the parent to the child, use translation routing for all calls.
- 

## Create and Schedule Routing Scripts on Parent

A routing script determines how a call is handled by establishing the routing rules. In this section, you create a routing script and schedule it. You can then log in agents and have them make and accept calls.

For more information about scripting, see *Scripting and Media Routing Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-user-guide-list.html>.

For instructions on creating a Translation Route, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>

## Procedure

---

- Step 1** Start the Script Editor application on the Administration & Data Server.
- Step 2** Create the first routing script, named `internal_2500`.
- Set the **Skill Group** node to `ACMI_1.Cisco_Voice.SG01` and `ACMI_1.Cisco_Voice.SG02`.
  - Set the **Queue to Skill Group** node to `ACMI_1.Cisco_Voice.SG01` and `ACMI_1.Cisco_Voice.SG02`.
  - Set the **Wait** node to **10** seconds.

- Step 3** Save the script.
- Step 4** Choose **Script > Call Type Manager**.  
The **Call Type Manager** appears.
- Step 5** Select **Media Routing Domain** and **Dialed Number**.  
This setting associates the call type with the dialed number.
- Step 6** Click **Add**.  
The **Dialed Number Entry** dialog appears.
- Step 7** Associate the dialed number with the call type by selecting **internal\_2500CT** (the call type), then click **OK**.
- Step 8** To schedule the routing script, click the **Schedule** tab.
- Step 9** Click **Add**.  
The **Call Type Scheduling** dialog appears.
- Step 10** Accept all the default settings on each of the rest of the tabs, then click **OK**.  
You return to the **Call Type Manager**.
- Step 11** Click **OK**.  
You now have a system that allows you to log in agents and have them make and accept calls.
- 

## Start Unified ICM Service

Start the Unified ICM Service for the Enterprise Gateway PG.

### Procedure

---

In the **Unified ICM Service Control** dialog, select the **Services name** for the Enterprise Gateway PG and click **Start**.  
After the child and the parent Unified ICM establish a connection, the child configuration propagates to the parent Unified ICM Configuration Manager. Agent configuration information on the child propagates to the parent. The agent information is grayed out on the parent because you cannot modify or delete that information at the parent level.

---

### What to do next

For general information about Unified ICM Service Control, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>.

## Enable Dropping Call Participants from a Conference Call

In a Parent/Child deployment, the function of dropping any call participant from a conference call is disabled by default.



---

**Note** This function is available only if Cisco Unified CCE Release 12.0(1) or later release is deployed on both the parent and child PGs.

The parent PG deployed with a Cisco Unified CCE release earlier than Release 12.0(1) results in a mismatch in the Termination Call Detail (TCD) reporting.

---

Complete the following steps in the *child PGs* to enable the function to drop any call participant from a conference call:

### Procedure

---

- Step 1** Set the *HandleCVPCConnectionUpdate* registry key to *2* in `HKLM\SOFTWARE\Cisco Systems, Inc.\ICM<Instance><Component>\PG\CurrentVersion\JGWS\Processes<process>\JGWData\Dynamic`
- Step 2** Set the *DropAnyPartyEnabled* registry key to *1* in `HKLM\SOFTWARE\Cisco Systems, Inc.\ICM<Instance><Component>\CG\CurrentVersion\CTIServer\Dynamic`
-



## CHAPTER 3

# Contact Center Gateway with Unified CCE Deployment

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- [Contact Center Gateway Setup Prerequisites](#), on page 35
- [Enterprise Gateway Autoconfiguration](#), on page 38
- [Enterprise Gateway Routing](#), on page 38

## Contact Center Gateway Setup Prerequisites

Before setting up your Cisco Contact Center Gateway, complete these prerequisite steps:

1. Install and configure a Unified CCE child system. See the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html> and the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html> for detailed instructions.



**Note** To enable call transfers from a parent cluster to a child cluster, first satisfy the Unified Communications Manager IP Telephony requirements. For example, deploy a Device Trunk such as H.225 Trunk (Gatekeeper Controlled) or Intercluster Trunk (Non-Gatekeeper Controlled). For more information, see the *Cisco Unified Communications Manager* documentation at <https://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/tsd-products-support-series-home.html>.

2. Test your child Unified CCE system to verify that everything works correctly and that you can route calls.
3. Install and configure a Unified ICM parent system, which includes installing a redundant pair of Unified CCE Gateway PGs.
4. Collect the necessary configuration information. Although many elements are configured automatically, some elements require manual setup. For example, for the CTI Server, you need the host names or IP addresses and connection ports for Side A and Side B. You also need the Peripheral ID when setting up a system peripheral.

### Related Topics

[Enterprise Gateway Autoconfiguration](#), on page 38

## Enable Application Routing on Child

### Procedure

- 
- Step 1** In the Configuration Manager of the Unified CCE child, select **Tools > List Tools > Dialed Number/Script Selector List**.
- Step 2** In the **Attributes** tab, check **Permit Application Routing** for those route points on which you post route or translation route to the parent.
- Check this option for dialed numbers from the parent, for translation routing DNIS/Label for the parent, and for anything transferred from the parent by post routing.
- 

## Special Configuration for Unified CCE Child with Unified CVP

A Unified CCE child can use Unified CVP as its VRU.

A Unified CCE child system that uses Unified CVP requires the following:

- The Unified CCE VRU Peripheral Gateway is mapped to the Unified Communications Manager routing label.
- The Unified Communications Manager route pattern must be associated with the child Unified CVP.
- The SIP static route for Unified CVP must point to the child Unified Communications Manager.

For more information on configuring Unified CVP, see the *Configuration Guide for Cisco Unified Customer Voice Portal* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-customer-voice-portal/products-installation-and-configuration-guides-list.html>.

## Configure the Unified CCE Gateway PG

### Procedure

- 
- Step 1** Start the Configuration Manager on the Admin Workstation.
- Step 2** Follow the standard procedure for installing a PG with the following Unified CCE Gateway-specific settings:
- In the **Peripheral Gateway Properties** dialog, for **Client Type Selection**, select **Unified CCE Gateway** as your “switch” PG type.
  - You cannot also select VRU. If you attempt to add a VRU in this case, an error message appears.
  - In the **Advanced** tab of the PG Explorer, ensure that **Agent autoconfiguration** is disabled for the Unified CCE Gateway PG to function properly.
- 

### What to do next

When you bring up the Gateway PG, the autoconfiguration takes place.

## Other Configuration on the Parent

Some autoconfiguration happens between the parent and child. You configure other elements manually in the Configuration Manager so that call flows work properly:

- Configure a Network Trunk Group and a Trunk Group on the Unified CCE Gateway PG. This task is used when configuring peripheral targets.
- Configure Routes, Peripheral Targets, and Labels for the routing clients for the autoconfigured Services (child call types). The routing clients are the Unified CCE Gateway PG and the parent VRU (either Unified CVP or Unified IP IVR). Configure corresponding route points that match the labels in Unified Communications Manager. Add the labels to the child as dialed numbers with Permit Application Routing enabled.
- Add the autoconfigured Skill Groups as Service Members. If you do not add these Service Members, you cannot use MED.
- To pass call context from the parent to the child, you must translation route all calls. Create translation routes, routes, peripheral targets, and labels for the Unified CCE Gateway PG and the parent routing clients.

See the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html> for more information.

### Related Topics

[Translation Routing](#), on page 41

## Script to Verify Deployment

Create a script that can interact with the Unified CCE Gateway to verify your deployment. Be sure that the script targets a skill group, either directly or through a service. For example, you can create scripts for Longest Available Agent (LAA) for skill groups and Minimum Expected Delay (MED) for Services. If the script uses a translation route, create the translation route before you create the script.

For more information about scripting, see the *Scripting and Media Routing Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-user-guide-list.html>.

For instructions on creating a Translation Route, see *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>.

### Related Topics

[Enterprise Gateway Routing](#), on page 38

[Translation Routing](#), on page 41

## Unified ICM Service Startup

You start the Unified ICM Service for the Enterprise Gateway PG in the Unified ICM Service Control dialog. Select the Services name for the Enterprise Gateway PG and click Start.

After the child and the parent Unified ICM establish a connection, the child configuration propagates to the parent Unified ICM Configuration Manager. Agent configuration information on the child propagates to the

parent. The agent information is dimmed on the parent because you cannot modify or delete that information at the parent level.

For general information about Unified ICM Service Control, see the *Configuration Guide for Cisco Unified ICM/Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>.

## Enterprise Gateway Autoconfiguration

Follow the same procedure as [Autoconfiguration with Enterprise Gateway, on page 29](#).

### Autoconfiguration Maintenance

The following points provide help with autoconfiguration maintenance:

- You can find errors from the last run of the autoconfiguration dialog in the `AutoConfigError.txt` file. The file is in the main PG directory for a Unified CCE Gateway PG, for example, `C:\icm\cust1\PG1A\AutoConfigError.txt`. You can view the file with any text editor. The file contains the time and date and a brief error message as to why an element could not be configured. If this file does not exist, that means the last configuration run was clean.
- Periodically, manually delete entries in the Service, Agent, and Skill Group tables that allow deletion. An item that does not allow deletion shows a circle with a line through it next to the item. You can delete items on the parent after they are deleted on the child. When you delete an item on the child, the parent does not also delete that item automatically.
- Most autoconfiguration errors occur (in Enterprise cases) because of deleted records. Use the Deleted Objects tool in the parent to permanently delete any deleted records. You can access this tool in Configuration Manager by choosing **Tools > Miscellaneous Tools > Deleted Objects**. This task reduces the number of autoconfiguration errors. The fewer records that are marked for deletion that still exist, the smaller the chance that autoconfiguration gets duplicate errors when creating objects.




---

**Note** Do not confuse Contact Center Gateway autoconfiguration with Agent autoconfiguration. (Agent autoconfiguration is an option available on the Advanced tab in the PG Explorer.) Ensure that Agent autoconfiguration is disabled so that the Unified CCE Gateway PG can function properly.

---

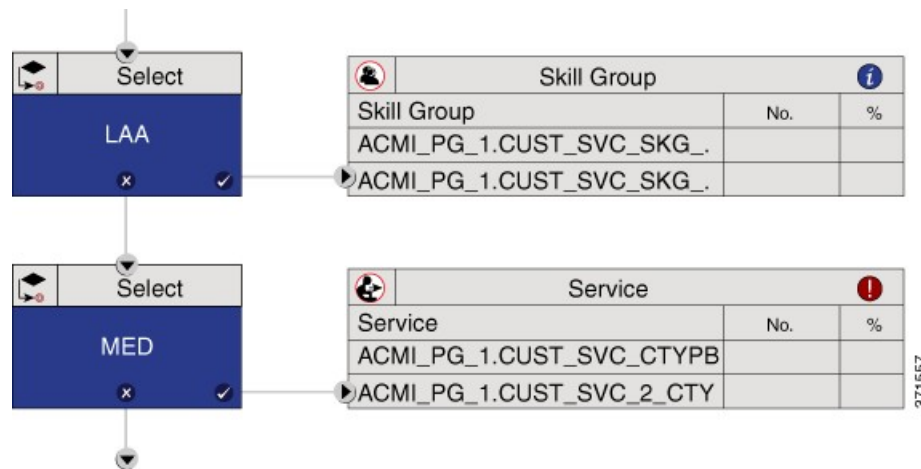
## Enterprise Gateway Routing

The script on the Unified ICM parent interacts with the Unified CCE Gateway PG.

Ensure that all remotely handled route points (Application routing enabled) have default "local" scripts. The default "local" script runs in case no host (parent) is available. Include Post Route points in the scripts as well as translation route destinations.

The following simple routing script has an LAA node. That node selects the skill group with the longest available agent (if an agent is available) among skill groups on the same ACD or a different ACD. If no agents are available, then the script selects the Service with the Minimum Expected Delay (MED) among the services on the same or a different ACD.





**Note** Scripting in a Contact Center Gateway deployment is no different than the scripting between Unified ICM and all other TDMs. Either skill groups or services are targeted, not agents.

## Routing Configuration

To Post-route a call from the child Unified CCE to the parent Unified ICM, you must:

- Create a transfer number on the child's Unified Communications Manager cluster as a CTI Route Point (a Unified Communications Manager object). When an agent on the child wants to post-route a callback through Unified ICM, the call transfers to that dialed number.
- Configure the transfer number in both the child and the parent. In the child, tag the number to allow application routing. Application routing means that the route request passes up to the parent for a response. In case the parent does not respond, the child also needs backup scripting to handle the call locally.



**Note** You cannot use the DN for a CTI Route Point on a different CTI Route Point in another partition. Ensure that DNs are unique across all CTI Route Points on all partitions.

In the Parent, you must:

- Create the dialed number for the transfer CTI Route Point.
- Build a call type and associated script to perform the post-route in the parent Unified ICM.

The parent script can instruct the child system:

- To transfer the call to another child (through a translation route to the other child's skill group).
- To transfer the call to a destination on the same child.
- Or with Unified CVP, the script can instruct CVP to connect the callback to the network queue (provided the call came from there originally).

If CVP is present at the Parent, the Parent/Child design assumes that the parent CVP gets all the calls first and is the network queue point. That assumption does simplify the call delivery, RONA, and subsequent transfers.

If you use Unified IP IVR to do the enterprise queuing at the parent Unified ICM, be aware of the following:

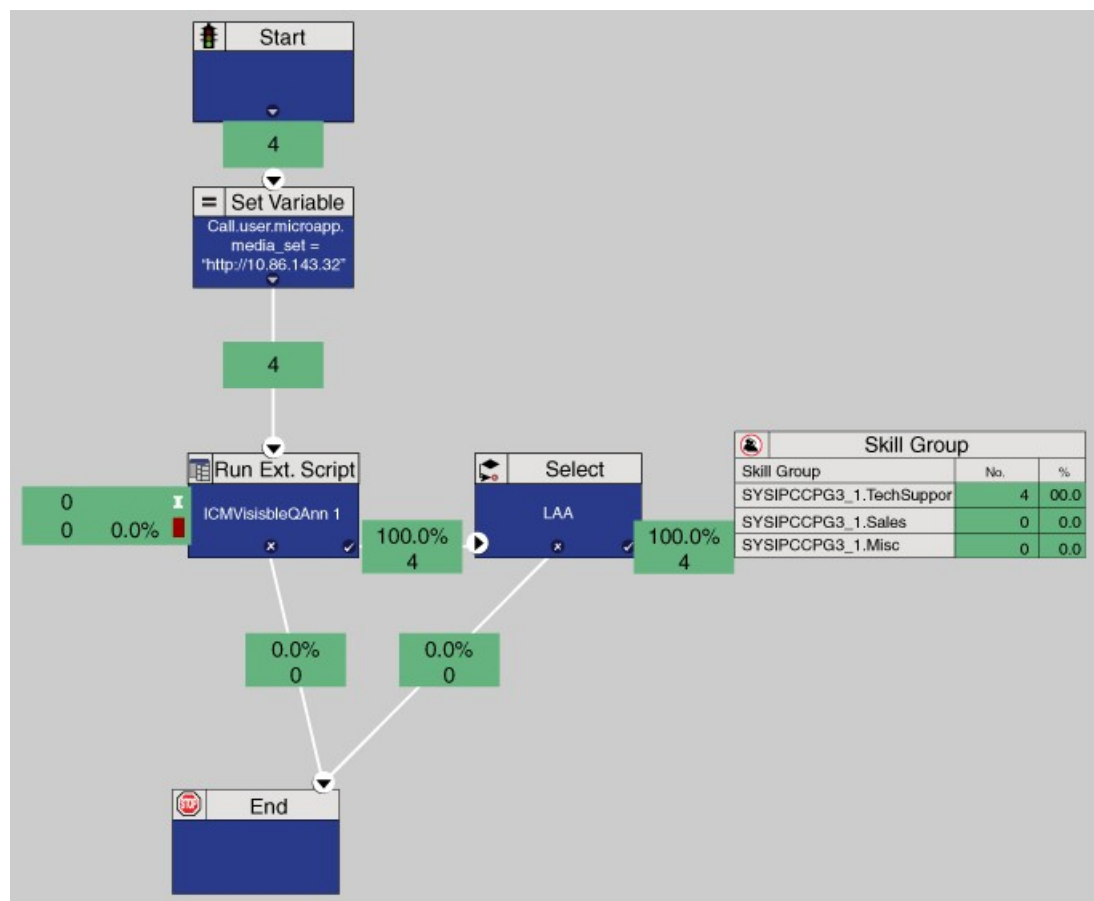
- There is no built-in RONA timeout for that model, like Cisco has with CVP. In the IP IVR case, you must script locally for RONA at the Child. In that script, you can reroute the call to the parent Unified ICM or hold the call in queue locally for the next local agent.
- For subsequent transfers between child systems, there is extra work to translation route the calls to the parent IP IVR in the parent post-routing script.

In the child, you must:

- Create the dialed number for the transfer CTI Route Point.
- Enable application routing and build backup treatment in case the parent does not respond. The call sits in a CTI Route Point that can timeout. So, you need a way to deal with that call when the Unified ICM does not return a route.

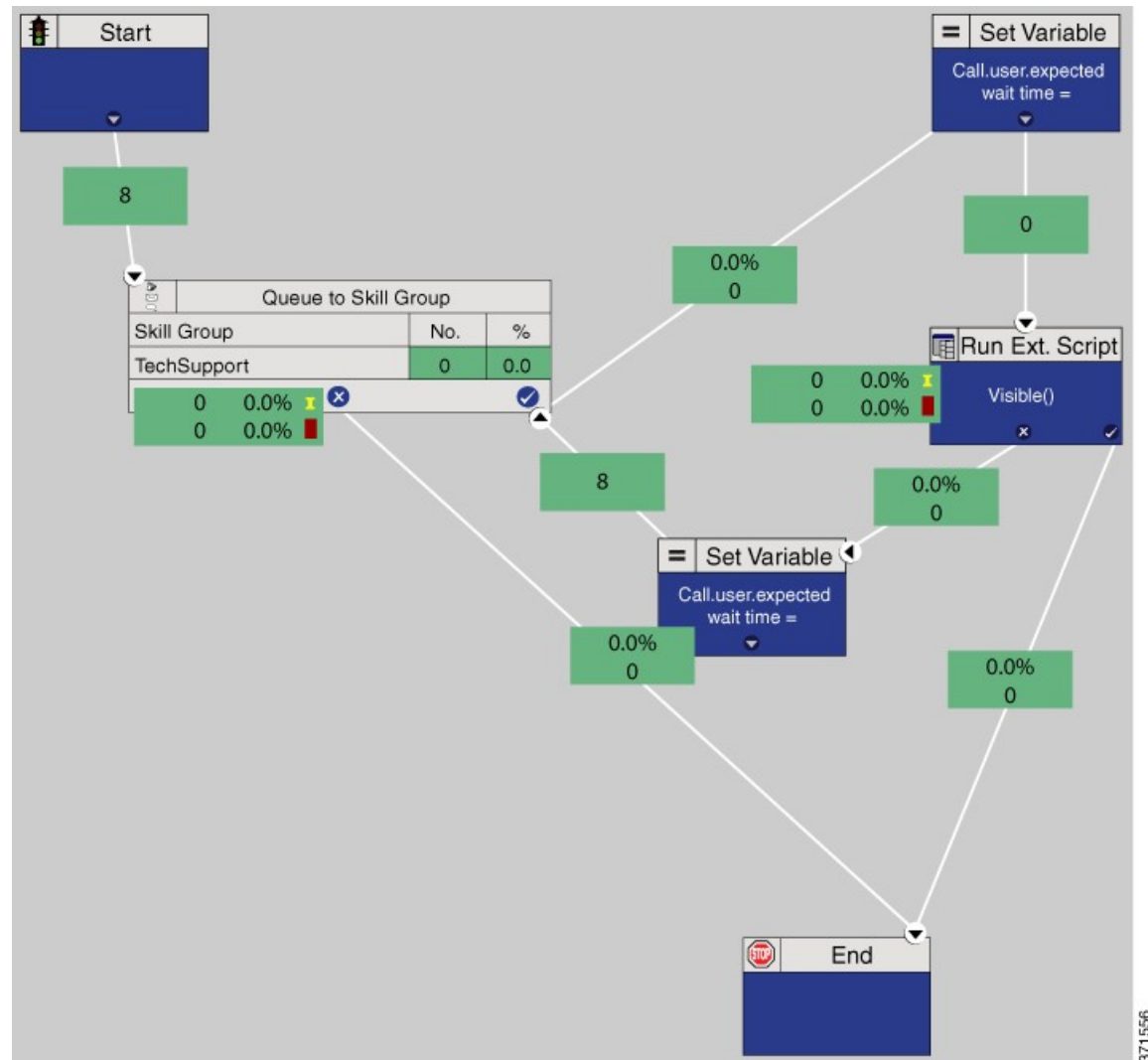
The following routing scripts show sample parent and child call flow configurations. The first script runs the external script, ICMVisibleQAnn1, that uses Unified CVP for network queuing in the Parent system:

**Figure 5: Example Parent Call Flow Configuration**



The second script runs an external script, VisibleQ, that uses Unified IP IVR for queuing in the Child system:

Figure 6: Example Child Call Flow Configuration



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## Translation Routing

A translation route is a special destination for a call that allows you to deliver call information along with the call. Translation routing maintains the association between a call and its related data throughout the life of the call. Translation routing plays a significant role in the accuracy of reporting and allows for "cradle-to-grave" call tracking and reporting. Some reporting metrics for call types and skill groups are applicable only if calls are translation-routed.

The call is delivered first to the translation route. While the routing client processes the call, the Unified ICM delivers the final destination for the call to the PG with any other necessary information. The peripheral then works with the PG to reroute the call and the appropriate information to the ultimate target.

You can create a translation route with either the Translation Route Explorer or the Translation Route Wizard. If you create a translation route with the Wizard, you can later modify it through the Explorer. The Wizard is

helpful when creating multiple translation routes. After you create the translation route, you create a translation route script.

## Create Translation Route with Translation Route Explorer

You can define translation routes in the Unified ICM Configuration Manager with the Translation Route Explorer. See the online help for information on the specific fields in the Explorer.

### Procedure

- 
- Step 1** In the Configuration Manager, select **Tools > Explorer Tools > Translation Route Explorer**. The **Translation Route Explorer** dialog appears.
  - Step 2** Set up a translation route associated with the peripheral.  
You do not need a separate translation route for each possible skill target at the site. But, you need at least one translation route for each peripheral that you want to target. For example, if Peripherals A and B both route only to Peripheral C, you only need translation routes on Peripheral C. You need labels for Peripheral A and Peripheral B as well.
  - Step 3** Set up one or more routes and associated peripheral targets for the translation route.  
Typically, all peripheral targets for a translation route refer to the same trunk group, but with different Dialed Number Identification Service (DNIS) values.
  - Step 4** Set up a label on the original routing client for the call to access each of the peripheral targets associated with the translation route.
  - Step 5** For each peripheral target that you want to access through a translation route, set up a label with the peripheral as the routing client.  
The online help guides you through completion of the fields in the Explorer. More detailed information can be found in the Configuration Guide for Cisco Unified ICM/Contact Center Enterprise.
- 

## Create Translation Route with Translation Route Wizard

### Before you begin

Before you begin creating the translation route, configure a Peripheral Gateway (PG), Network Trunk Group, Routing Clients, Trunk Groups, and Trunks.

Before using the **Translation Route Wizard**, go to **Tools > Explorer Tools > PG Explorer**. On the **Peripheral** tab, check the **Enable post routing** option. In the **Routing client** tab, name the routing client.



- 
- Note** This example procedure is for a relatively simple deployment model that has one parent, one child, and Unified CVP at the parent.
- 

### Procedure

- 
- Step 1** In the Configuration Manager, select **Tools > Wizards > Translation Route Wizard**.

- The **Translation Route Wizard** appears.
- Step 2** Click **Next**.  
The **Select Configuration Task** page appears.
- Step 3** Select **Create New** and click **Next**.  
The **Define Translation Route** page appears. The left panel shows the entities that are defined while using the Translation Route Wizard.
- Step 4** Enter a long name for the translation route in the **Name**. Click **Next**.  
The **Short name** field automatically populates based on the long name. The short name is used in forming target names. You can also enter an optional **Description**.  
The **Select Configuration** page opens.
- Step 5** From the drop-down list, select **Single peripheral, multiple routing clients** and click **Next**.  
The **Select Peripheral Gateway, Peripherals, and Services** page opens.
- Step 6** Select the PG for the Unified CCE Gateway PG from the **Peripheral Gateway** list and the peripheral for that PG from the **Peripheral** list. Click **Next**.  
The service is the call type that propagated from the child to the parent.  
The **Select Routing Clients and Dialed Numbers** page opens.
- Step 7** Select routing clients from the **Post Routing Client** list for the Unified CCE Gateway PG and for Unified CVP. Do not select anything from the **Pre Routing Client** list. The **Dialed Number** list is dimmed, so you cannot select any dialed numbers. Click **Next**.  
The **Select Network Trunk Groups for Routing Clients** page opens.
- Step 8** Select the routing client for the Gateway PG and click **Add**. Then select the routing client for Unified CVP and click **Add**.  
The **Routing Client** and **Network Trunk Group** information appears at the bottom of the page.
- Step 9** Click **Next**.  
The **Configure DNIS** page opens.
- Note** The DNIS is the value the network returns to the Gateway or Unified Communications Manager to indicate the dialed number. If the DNIS is attached to a route, the route must have its Service field populated. You do not have to define the DNIS in the Unified ICM database.
- Step 10** Click **Add DNIS range** and enter a beginning DNIS (such as 1110000) and an ending DNIS (such as 1110010). Then, click **OK**.  
The DNIS list appears on the page with all the numbers in the range listed.
- Step 11** For simplicity, use the same DNIS and label, and click **Next**.  
The **Configure Label** page opens.
- Step 12** Click **Set prefix = DNIS** for each routing client.  
A **Set Prefix = DNIS** page opens.
- Note** The label does not always match the DNIS. Usually the label consists of a prefix (for example, 1800123), followed by the DNIS.
- Step 13** Select the **Include DNIS string as is** radio button, and click **OK**.  
The **DNIS**, **Label**, and **Prefix** lists populate with the numbers.
- Step 14** Click **Next**.  
The final page appears.
- Step 15** Click **Create Translation Route**.
- Step 16** After getting a success message, run a **Translation Route Configuration Report** and check the values.

For a Parent/Child deployment to work properly, the configuration of the Parent, Child, Unified Communications Manager, Unified CVP, and the IOS gateway must match. Add all the numbers in the translation route to the child Unified CCE (as Dialed Numbers with Permit Application Routing enabled) and Unified Communications Manager (as Route Points). Ensure that the numbers match across the deployment (parent, child, and Unified Communications Manager).

---

### Related Topics

[Enable Application Routing on Child](#), on page 36

## Configure Unified IP IVR for Translation Routing

If you use Unified IP IVR instead of Unified CVP in a translation route, there are some extra configurations necessary in Unified IP IVR. You add a Unified ICM translation routing application, and then assign a JTAPI trigger to this application.




---

**Note** Before configuring a translation routing application, first upload the VRU scripts required by the application.

---

### Procedure

---

- Step 1** In Unified CCE Administration, select **Applications > Application Management**.
- Step 2** Click **Add a New Application**.
- Step 3** From the **Application Type** drop-down menu, select **Unified ICM Translation Routing**.
- Step 4** Enter the name of the Unified CCE translation routing script in the **Name** field.
- Step 5** Press Tab to automatically populate the **Description** field.
- Step 6** In the **ID** field, accept the ID, or enter a unique ID.  
This field corresponds to the service identifier of the call that was reported to the Cisco Unified ICM and configured in the Unified ICM translation route.
- Step 7** In **Maximum Number of Sessions** field, enter the maximum number of simultaneous sessions that the application can handle.
- Step 8** In the **Enabled** field, accept the default radio button **Yes**.
- Step 9** In the **Timeout** field, enter a value.  
This value is the maximum number of seconds that the system waits to invoke the application before rejecting a contact.
- Step 10** From the **Default Script** drop-down, choose the script to runs when a system error occurs or when the Unified ICM routes to the default treatment.
- Step 11** Click **Add**.  
A message confirms successful execution.
- Step 12** Click **OK**.
- Step 13** Click **Add New Trigger**.  
The **Add a New Trigger** page opens.
- Step 14** From the **Trigger Type** drop-down menu, select **Unified CM/Unified CME Telephony** and click **Next**.
- Step 15** In Unified CCE Administration, select **Subsystems > Unified CM Telephony**.

- Step 16** On the **Unified CM Telephony Configuration** navigation bar, click the **Unified CM Telephony Triggers** hyperlink.  
The **Unified CM Telephony Trigger Configuration** summary web page opens.
- Step 17** Click **Add a New Unified CM Telephony Trigger**.  
The **Unified CM Telephony Trigger Configuration** web page opens.
- Step 18** Complete the fields on this page (see the online Help for additional information), then click **Add**.  
The **Unified CM Telephony Trigger Configuration** summary web page opens, displaying the new Unified CM Telephony trigger.
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## Call Flow Creation Tips

Before creating a call flow, consider the following:

- Network Consultative transfer is not supported with Unified CVP in a Parent/Child environment. Disable network transfer for the call flow to work.
- Use the IP address, not a name, when configuring SIP trunks on Cisco Unified CallManager.

## Call Flow with Unified CVP at Parent

Typically, a parent Unified ICM system (including CVP, VXML, and PSTN gateways) is located in a different location than a child Cisco Unified CCE system. This section describes a sample Parent/Child call flow; the components and the configuration were tested and verified in this contact center test environment.



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**Note** This call flow information was taken from the Cisco Tested Call Flows page at [https://www.cisco.com/c/en/us/td/docs/voice\\_ip\\_comm/uc\\_system/UC8-0-2/cc\\_system\\_arch/ch4\\_flow.html?dtid=ossdc000283](https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/uc_system/UC8-0-2/cc_system_arch/ch4_flow.html?dtid=ossdc000283). See that site for additional information about the necessary configuration and scripting for these call flows.

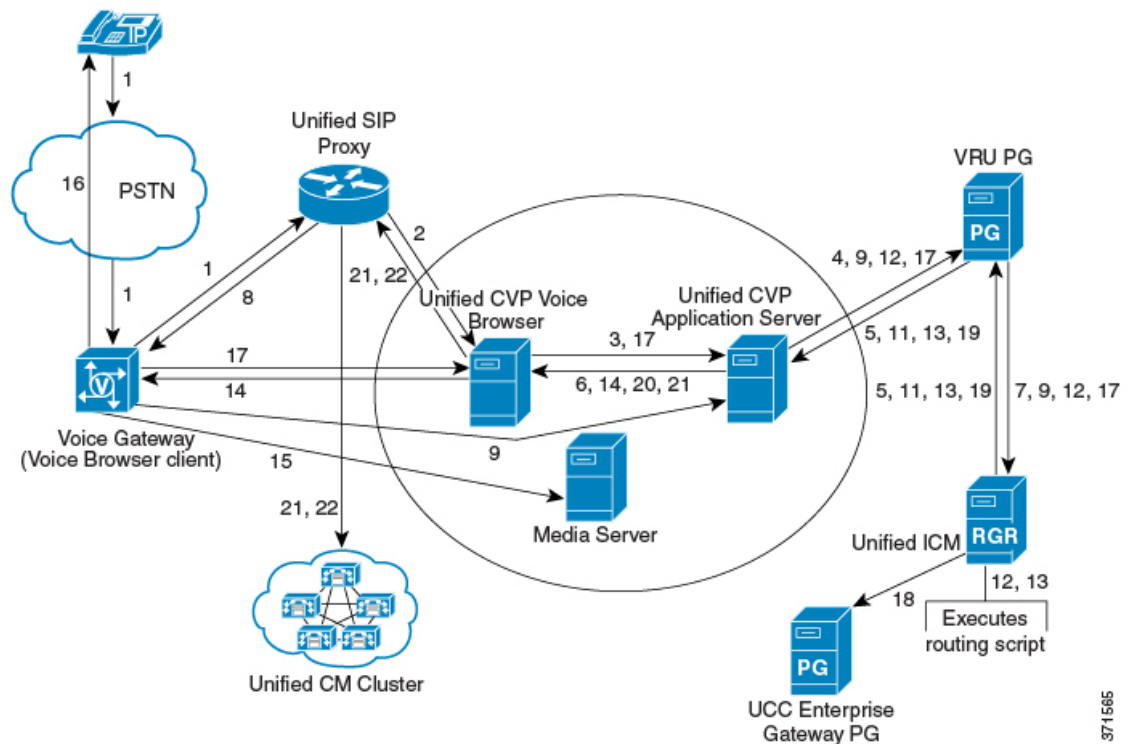
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**Note** In this call flow, the CVP Application Browser, CVP SIP subsystem service, and Media Server are represented as separate entities. However, they are all on the same CVP call control server.

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The call flow on the Parent system works as follows:

1. The call comes from the PSTN into an IOS SIP Gateway that originates a SIP call to Unified SIP Proxy.
2. Unified SIP Proxy sends the SIP call to the CVP SIP subsystem service.
3. The Unified CVP SIP subsystem service sends the details of the call to the Unified CVP Call Server using HTTP.
4. The Unified CVP Call Server sends a NEW\_CALL event to the Unified ICM.
5. Unified ICM, upon receipt of the NEW\_CALL event, sends a temporary Connect label to connect a VRU to the Unified CVP Call Server.
6. The Unified CVP Call Server sends the label with a correlation ID to the CVP SIP subsystem service.
7. The Unified CVP SIP subsystem service sends the label to Unified SIP Proxy.
8. Unified SIP Proxy sends the call to the VXML gateway.
9. The VRU functionality of the PSTN Gateway sends a message to the appropriate Unified CVP Call Server. The Call Server, in turn, sends a REQUEST\_INSTRUCTION message to Unified ICM.
10. Unified ICM uses the correlation ID. The correlation ID was relayed to Unified ICM, with the call that it processed earlier, as a part of the REQUEST\_INSTRUCTION message.
11. Unified ICM, upon receipt of the REQUEST\_INSTRUCTION message, also sends a CONNECT\_TO\_RESOURCE event back to the Unified CVP Call Server.
12. The Unified CVP Call Server acknowledges Unified ICM with a RESOURCE\_CONNECTED event. Then, Unified ICM executes the routing script that is enabled for that call.

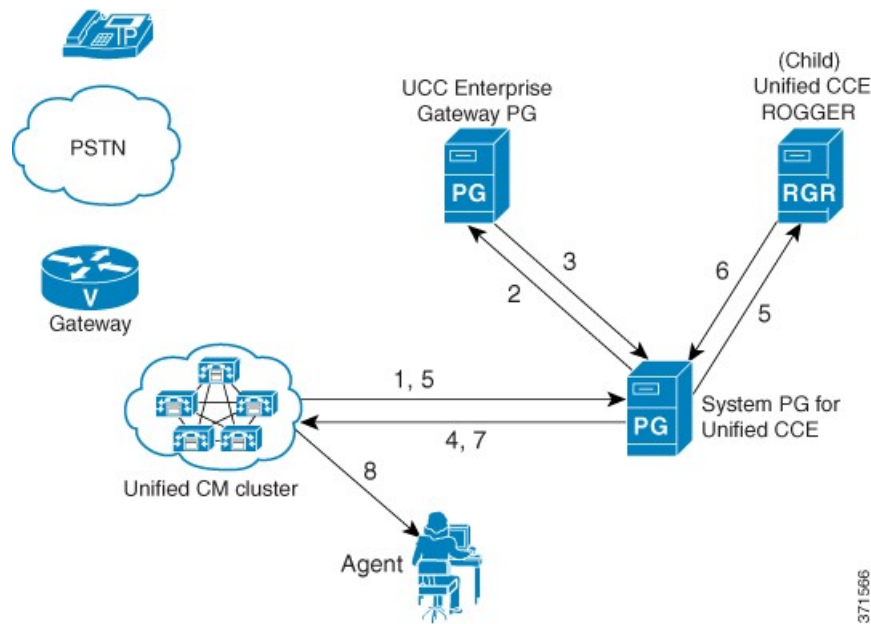


13. Upon execution of the routing script by Unified ICM, the Unified CVP Call Server gets a RUN\_SCRIPT\_REQ event from Unified ICM.
14. The Unified CVP Call Server runs the script and sends instructions to the Unified CVP SIP subsystem client (PSTN GW) by HTTP (VXML) to play the media file.
15. The Unified CVP SIP subsystem client sends HTTP requests to the HTTP Media Server to get the media file. The client then plays the media file out to the caller.
16. The contents of the media file request the caller to respond to the prompts in the recording.
17. The Unified CVP SIP subsystem client detects the response or caller-entered digits (CED). The client sends the response to the Unified CVP Call Server which then forwards the response to Unified ICM.
18. Unified ICM does the following:
  - Receives the CED and determines the appropriate child system to handle the call by returning a label for the peripheral target. In this example, the peripheral is the child Unified ICM.
  - Sends a PRE\_ROUTE message to the Unified CCE Gateway.
19. Unified ICM instructs the Unified CVP Call Server, with a CONNECT event, to start setting up the IP Transfer to the peripheral target. In this example, the label for the peripheral target is defined as a CTI route point on the Unified Communications Manager in the child system.
20. The Unified CVP Call Server sends a VXML Transfer to the Unified CVP SIP subsystem service to start call setup to the peripheral target.
21. The Unified CVP SIP subsystem service sends several SIP messages to Unified SIP Proxy to:
  - Open and close the appropriate RTP path to the originating PSTN Gateway and the VRU.
  - Set up the call to the child Unified Communications Manager.

The call arrives at the translation route destination on the child system.

## Agent Available on Child

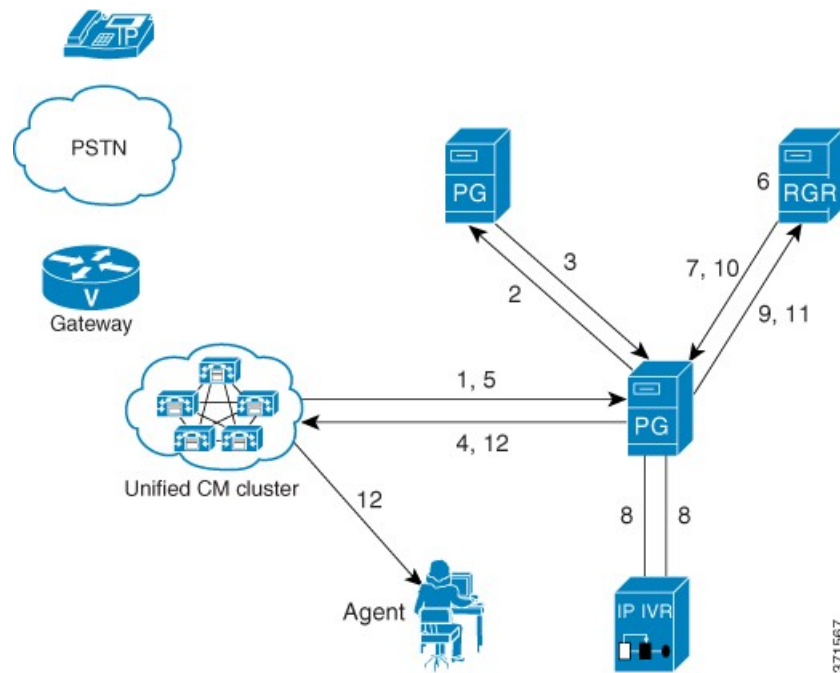
After the call arrives in the Child System, the call flow works as follows if an agent is available:



1. The call comes to the CTI route point on the Unified Communications Manager of the child system. Unified Communications Manager sends a ROUTE\_REQUEST message (to determine that the Gateway PG is registered for control of this route point) to the System PG for Unified CCE.
2. The System PG for Unified CCE recognizes that the route point is registered by the parent Gateway PG. The System PG then sends a ROUTE\_REQUEST message to the Unified CCE Gateway PG.
3. The Unified CCE Gateway PG matches up the DNIS on the route point (translation route). The PG then responds with a ROUTE\_SELECT (and a label), which is a CTI route point on the child Unified Communications Manager and also a configured DN on the child.
4. The System PG for Unified CCE sends the ROUTE\_RESPONSE to the child Unified Communications Manager.
5. Because the response is a configured DN, the System PG sends a NEW\_CALL to the child Unified CCE Rogger.
6. The CallRouter runs a script, selects an available agent, and returns a Connect for the label of that agent device.
7. The System PG for Unified CCE returns a ROUTE\_RESPONSE to the Unified Communications Manager.
8. The call reaches an available agent.

## Agent Unavailable on Child

After the call arrives in the Child System, the call flow works as follows if an agent is not available:



1. The call comes to the CTI route point on the Unified Communications Manager of the child system. Unified Communications Manager sends a ROUTE\_REQUEST message (to determine that the Gateway PG is registered for control of this route point) to the System PG for Unified CCE.
2. The System PG for Unified CCE recognizes that the route point is registered by the parent Gateway PG. The System PG then sends a ROUTE\_REQUEST message to the Unified CCE Gateway PG.
3. The Unified CCE Gateway PG matches up the DNIS on the route point (translation route). The PG then responds with a ROUTE\_SELECT (and a label), which is a CTI route point on the child Unified Communications Manager and also a configured DN on the child.
4. The System PG for Unified CCE sends the ROUTE\_RESPONSE to the child Unified Communications Manager.
5. Because the response is a configured DN, the System PG sends a NEW\_CALL to the child Unified CCE Rogger.
6. The script determines the skill group that can best answer the call and checks for agent availability. Since an agent is unavailable to answer the call, the Unified CCE script places the call in a queue for the specific skill group.
7. The Unified CCE Router returns a CONNECT message with a label to the Unified Communications Manager. The label allows the call to route to the Unified IP IVR. For Unified IP IVR, the dialed number is a CTI route point that the Unified IP IVR user owns.



**Note** On Unified IP IVR, this CTI route point is defined as a JTAPI Trigger. Unified IP IVR is in the same Unified Communications Manager cluster as the call.

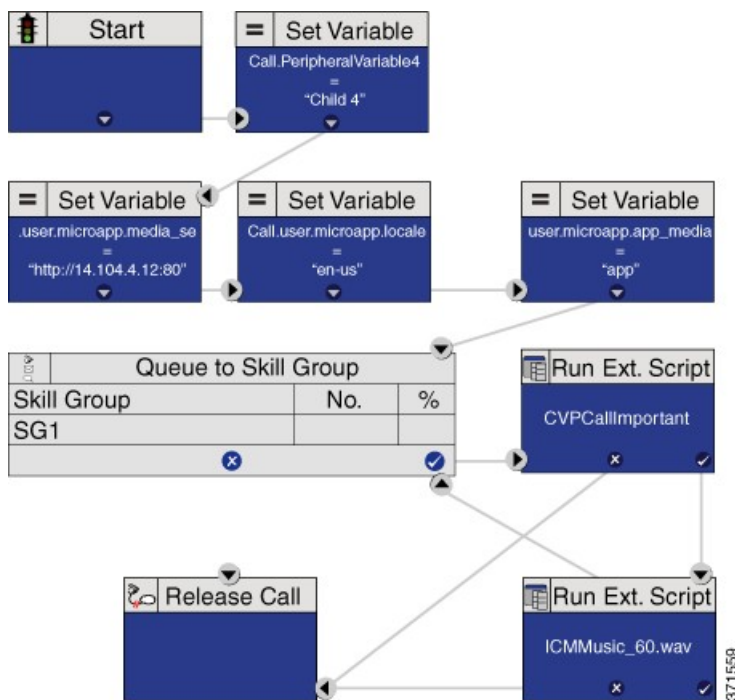
8. When the call arrives, the JTAPI link on Unified Communications Manager informs Unified IP IVR, which in turn informs the System PG for Unified CCE.
9. When the System PG for Unified CCE receives the incoming call arrival message, the System PG sends a REQUEST\_INSTRUCTION to the Unified CCE Router.

10. Unified CCE instructs Unified IP IVR, through the System PG, to play the queue messages for the caller with a RUN\_SCRIPT. The queue messages continue until an agent is available to take the call.
11. Once an agent becomes available, Unified CCE then does the following:
  - Sends a PRE\_CALL message to the System PG for Unified CCE with call context information. The System PG reserves the agent and waits for the call to arrive at the agent phone.
  - Instructs Unified IP IVR to redirect the call from the agent queue to the available agent through the System PG.
12. Unified IP IVR then sends the call to the Unified Communications Manager. The call then continues through the call flow for an available agent.

## Call Flow with Translation Route

The following routing script uses a translation route. The routing script supports a call flow where the call originates at the child Unified CVP and no agent is available. The call is then queued locally until an agent becomes available to answer the call.

Figure 7: Translation Routing Script



## Queue to Unified CVP on Child

### Procedure

- Step 1** Populate the following **Set Variable** nodes (used with Unified CVP):
- a) `call.user.microapp.media_server = <voice_browser_address>`
  - b) `call.user.microapp.locale = en-us`

c) `call.user.microapp.app_media_lib = app`

- Step 2** Add a **Queue to Skill Group** and call it **SG1**.
  - Step 3** Add **Run External Script** nodes that run the `CVPCallImportant` script.
  - Step 4** Save the script and activate it.
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