



Remote Deployment Options

- [Global Deployments, on page 1](#)
- [Configure Local Trunk, on page 8](#)

Global Deployments

Global deployments allows service providers to deploy remote sites with centralized management. The following global deployment topologies are supported with standard HCS for CC for CC deployment models.

- [Remote CVP Deployment, on page 1](#)
- [Remote CVP and CUCM Deployment, on page 6](#)

Remote CVP Deployment

The Remote CVP deployment requires the following servers deployed at the remote sites. The maximum RTT with central controller over the WAN is restricted up to 400 ms.

Prerequisite: Standard HCS for CC for CC deployment model at the Data center.

- [Unified CVP Servers for Remote CVP Deployment, on page 1](#)
- [Unified CCE Servers for Remote CVP Deployment, on page 4](#)
- [Configure Cisco IOS Enterprise Voice Gateway](#)

Unified CVP Servers for Remote CVP Deployment

Use the Golden Template tool to deploy the remote CVP servers from the Golden templates. This section explains the procedures to configure Unified CVP servers at Remote Site.

Configure Remote CVP Server

To configure the remote CVP servers, See [Configure Unified CVP Server](#)

Configure Operations Console for Remote CVP for Remote Deployment

Add the remote CVP server components in CVP OAMP and change the UDP transmission, Heartbeat properties.

| Sequence | Task | Done? |
|----------|--|-------|
| 1 | Validate Network Card | |
| 2 | Enable Unified CVP Operations Console | |
| 3 | Configure Unified CVP Call Server for Remote Deployment, on page 2 | |
| 4 | Configure Unified CVP Server Component | |
| 5 | Configure Unified CVP Reporting Server | |
| 6 | Configure Unified CVP Media Server | |
| 7 | Install Unified CVP licenses | |
| 8 | Configure Gateways | |
| 9 | Add Unified CCE Devices | |
| 10 | Add Unified Communications Manager Devices | |
| 11 | Add Unified Intelligence Center Devices | |
| 12 | Transfer Scripts and Media Files | |
| 13 | Configure SNMP | |
| 14 | Configure SIP Server Group for Remote Deployment, on page 3 | |
| 15 | Configure Dialed Number Patterns | |

Configure Unified CVP Call Server for Remote Deployment

Procedure

-
- Step 1** On the Unified CVP OAMP server, go to **Start > All Programs > Cisco Unified Customer Voice Portal**.
- Step 2** Click **Operations Console** and log in.
- Step 3** Navigate to **Device Management > Unified CVP Call Server**.
- Step 4** Click **Add New**.
- Step 5** On the General tab, enter the IP address and the hostname of the Cisco Unified CVP Server. Check **ICM**, **IVR**, and **SIP**. Click **Next**.
- Step 6** Click the **ICM** tab. For each of the Cisco Unified CVP Call Servers, retain the default port of 5000 for the VRU Connection Port.
- Step 7** Click the **SIP** tab:
- In the Enable outbound proxy field, select **No**.
 - In the Use DNS SRV type query field, select **Yes**.
 - Check **Resolve SRV records locally**.
 - Set the UDP Retransmission Count to 3 in Advanced Configuration.
- Step 8** Click the **Device Pool** tab. Make sure the default device pool is selected.

- Step 9** (Optional) Click the **Infrastructure** tab. In the Configuration Syslog Settings pane, configure these fields as follows:
- Enter the IP address or the hostname of the syslog server.
Example:
Prime server
 - Enter **514** for the port number of the syslog server.
 - Enter the name of the backup server to which the reporting server writes log messages.
 - In the Backup server port number field, enter the port number of the backup syslog server.
- Step 10** Click **Save & Deploy**.
- Step 11** Repeat this procedure for the remaining Unified CVP Call Servers.

Configure SIP Server Group for Remote Deployment

SIP Server Groups are required for Cisco Unified Communications Manager and Gateways.

Procedure

- Step 1** In the Unified CVP Operations Console, navigate to **System > SIP Server Group**.
- Step 2** Create a server group for the Cisco Unified Communications Manager devices:
- On the General tab, click **Add New**.
 - Fill in the **SRV Domain Name FQDN** field with a value that will also be used in the Cluster FQDN setting in Enterprise Parameters in Communications Manager. For example, cucm.cisco.com.
 - In the **IP Address/Hostname** field, enter an IP address or hostname for the Unified Communications Manager node.
 - Click **Add**.
 - Repeat Steps c and d for each Unified Communications Manager subscriber. Click **Save**.
- Note** Do not put the Publisher node in the server group.
- SIP server group for Communications Manager is not required for SCC deployment as there is no direct SIP trunk created from Communications Manager to CVP in SCC model.
- Step 3** Create a server group for the gateway devices:
- On the General tab, click **Add New**.
 - In the **SRV Domain Name FQDN** field, enter the SRV Domain Name FQDN. For example vxmlgw.cisco.com.
 - In the **IP Address/Hostname** field, enter an IP address or hostname for each gateway.
 - Click **Add**.
 - Repeat Steps c and d for each gateway. Click **Save**.
- Add all VXML gateways as appropriate for deployment and branches. Adding all VXML gateways to the server group will load balance calls across all the member server group gateways.
- Step 4** Associate these server groups to all Unified CVP Call Servers:
- On the **Call Server Deployment** tab, move all Unified CVP Call Servers from the **Available** list to the **Selected** list.

b) Click **Save and Deploy**.

Step 5 Click **Heartbeat Properties** and make the following changes, else skip this step.

- a) Change the **Number of Failed Heartbeats** for **Unreachable Status** field to **3**.
- b) Change the **Heartbeat Timeout** field to **800 ms**.

Step 6 Click **Deployment Status** to make sure that you applied the configuration.

Note In the small contact center agent deployment, CUBE(SP) does not support FQDN configuration, therefore, you cannot create SIP server group pointing to CUBE(SP) for each sub customer.

Unified CCE Servers for Remote CVP Deployment

Use the Golden Template tool to deploy the remote CCE VRU PG from the Golden templates. This section explains the procedures to configure Unified CCE at Remote Site.

Modify Unified CCE Router

See [Configure the Unified CCE Router](#) and modify the value in **Enable Peripheral Gateways** dialog box by incrementing the value.

Add Remote VRU PG Using Unified CCE Configuration Manager

Complete the following procedure to add remote VRU PG using Unified CCE Configuration Manager.

Procedure

- Step 1** On the Unified CCE Admin Workstation Server, navigate to **Start > Cisco Unified CCE Tools > Administration Tools > Configuration Manager**.
- Step 2** In Configuration Manager Window, expand **Tools > Explorer Tools** and open **PG Explorer**. Add the Remote VRU PG, PIMs and Routing clients.
- Step 3** Navigate **Tools > Explorer Tools** and open **Network VRU Explorer**. Associate the Network VRU label with the remote VRU PG Routing clients.
- Step 4** Navigate **Tools > List Tools** and open **Expanded Call Variable List**. Enable the ECC variable `user.microapp.media_server`.
- Step 5** Navigate **Tools > List Tools** and open **Agent Targeting Rule**. Add the remote VRU PG routing clients.

Configure VRU PG for Remote CVP Deployment

Complete the following tasks to configure the Unified CCE peripheral gateways for the PG Server on Side A and then repeat the same procedure for Side B.

Procedure

- Step 1** Choose **Start > All programs > Cisco Unified CCE Tools > Peripheral Gateway Setup**.
- Step 2** Click **Add** in the ICM Instances pane.

- a) In the Add Instance window, select **Facility** and **Instance** from the drop-down list.
 - b) Enter **0** in the Instance Number field. Click **Save**.
- Step 3** Click **Add** in the Instance Components pane, and from the Component Selection dialog box choose **Peripheral Gateway**.
- Step 4** In the Peripheral Gateway Properties dialog box:
- a) **Check** Production Mode.
 - b) **UnCheck** Auto start system startup.
 - c) **Check** Duplexed Peripheral Gateway.
 - d) Choose **PGXX** in the PG node Properties ID field.
 - e) Click the appropriate Side (**Side A** or **Side B**).
 - f) Under Client Type pane, add **VRU** to the selected types.
 - g) Click **Next**.
- Step 5** In the Peripheral Interface Manager pane of the Peripheral Gateway Component Properties dialog box, click **Add** and configure PIM1 with the Client Type of VRU as follows:
- a) Check **Enabled**.
 - b) In the peripheral name field, enter a name of your choice.
 - c) In the Peripheral ID field, Refer to PG explorer and enter the value.
 - d) In the VRU hostname field, enter the hostname of Remote CVP server.
 - e) In the VRU Connect port field, enter **5000**.
 - f) In the Reconnect interval (sec) field, enter **10**.
 - g) In the Heartbeat interval (sec) field, enter **5**.
 - h) In the DSCP field, choose **CS3(24)**.
 - i) Click **OK**.
- Step 6** Refer to PG Explorer and Enter the value in the Logical Controller ID field.
- Step 7** Enter **0** in the CTI Call Wrapup Data delay field.
- Step 8** In the VRU Reporting pane, select **Service Control** and check **Queue Reporting**, Click **Next**.
- Step 9** In the Device Management Protocol Properties dialog box, configure as follows:
- a) Click **Side A Preferred**, if you are configuring Side A, or click **Side B Preferred**, if you are configuring Side B.
 - b) Choose **Call Router is Remote** in Side A Properties panel.
 - c) Choose **Call Router is Remote** in Side B Properties panel.
 - d) Accept the default value in the Usable Bandwidth (kbps) field.
 - e) Enter **4** in the Heartbeat Interval (IOOms) field. Click **Next**.
- Step 10** In the Peripheral Gateway Network Interfaces dialog box, enter the PG Private Interfaces and the PG Public (Visible) Interfaces.
- a) Click the **QoS** button in the private interfaces section for Side A. In the PG Private Link QoS Settings, check **Enable QoS** and click **OK**. This step applies only to Side A.
 - b) Click the **QoS** button in the Public (Visible) Interfaces section. In the PG Visible Link QoS Settings, check **Enable QoS**, click **OK**. This step applies only to Side A.
 - c) In the Peripheral Gateway Network Interfaces dialog box, click **Next**.
- Step 11** In the Check Setup Information dialog box, click **Next**.
- Step 12** In the Setup Complete dialog box, click **Finish**.

Note Do not start Unified CCE/CC Node Manager until all Unified CCE components are installed.

Remote CVP and CUCM Deployment

The Remote CVP and CUCM deployment requires the following servers deployed at the remote sites. The maximum RTT with central controller over the WAN is restricted up to 400 ms. Use the Golden Template tool to deploy the remote CCE, CVP, CUCM, and Finesse servers from the Golden templates.

Prerequisite: Standard HCS for CC for CC deployment model at the Data Center:

- [Configure Unified CVP](#)
- [Unified CCE Servers for Remote CVP and CUCM Deployment, on page 6](#)
- [Configure Unified Communications Manager](#)
- [Configure Cisco IOS Enterprise Voice Gateway](#)
- [Configure Cisco Finesse](#)

Unified CCE Servers for Remote CVP and CUCM Deployment

Use the Golden Template tool to deploy the remote CCE Agent PG from the Golden templates. This section explains the procedures to configure Unified CCE servers at Remote Site.

Modify Unified CCE Router

See [Configure the Unified CCE Router](#) and modify the value in **Enable Peripheral Gateways** dialog box by incrementing the value.

Add Remote Agent PG Using Unified CCE Configuration Manager

Complete the following procedure to add remote Agent PG using Unified CCE Configuration Manager.

Procedure

- Step 1** On the Unified CCE Admin Workstation Server, navigate to **Start > Cisco Unified CCE Tools > Administration Tools > Configuration Manager**.
 - Step 2** In Configuration Manager Window, expand **Tools > Explorer Tools** and open **PG Explorer**. Add the Remote Agent PG, CUCM and VRU PIMs and their Routing clients.
 - Step 3** Navigate **Tools > Explorer Tools** and open **Network VRU Explorer**. Associate the Network VRU label with the remote Agent PG Routing clients.
 - Step 4** Navigate **Tools > List Tools** and open **Expanded Call Variable List**. Enable the ECC variable `user.microapp.media_server`.
 - Step 5** Navigate **Tools > List Tools** and open **Agent Targeting Rule**. Add the remote Agent PG routing clients.
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Configure Agent PG for Remote CVP and CUCM Deployment

Complete the following tasks to configure the Unified CCE peripheral gateways for the PG Server on Side A and then repeat the same procedure for Side B.

Procedure

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- Step 1** Choose **Start > All programs > Cisco Unified CCE Tools > Peripheral Gateway Setup**.
- Step 2** Click **Add** in the ICM Instances pane.
- In the Add Instance window, select **Facility** and **Instance** from the drop-down list.
 - Enter **0** in the Instance Number field. Click **Save**.
- Step 3** Click **Add** in the Instance Components pane, and from the Component Selection dialog box choose **Peripheral Gateway**.
- Step 4** In the Peripheral Gateway Properties dialog box:
- Check** Production Mode.
 - UnCheck** Auto start system startup.
 - Check** Duplexed Peripheral Gateway.
 - Choose **PGXX** in the PG node Properties ID field.
 - Click the appropriate Side (**Side A** or **Side B**).
 - Under Client Type pane, add **CUCM** and **VRU** to the selected types.
 - Click **Next**.
- Step 5** In the Peripheral Interface Manager pane of the Peripheral Gateway Component Properties dialog box, click **Add** and configure PIM1 with the Client Type of CUCM as follows:
- Check** Enabled.
 - In the Peripheral name field, enter a name of your choice.
 - In the Peripheral ID field, Refer to PG explorer and enter the value.
 - In the Agent extension length field, enter extension length for this deployment.
 - In the Unified Communications Manager Parameters pane, configure as follows:
 - In the Service field, enter the hostname of the Unified Communications Manager Subscriber.
 - In the User ID field, enter pguser.
 - In the User password field, enter the password of the user that will be created on Unified Communications Manager.
 - In the Mobile Agent Codec field, choose either G711 ULAW/ALAW or G.729.
 - Click **OK**.
- Step 6** In the Peripheral Interface Manager pane of the Peripheral Gateway Component Properties dialog box, click **Add** and configure PIM2 with the Client Type of VRU as follows:
- Check** Enabled.
 - In the peripheral name field, enter a name of your choice.
 - In the Peripheral ID field, Refer to PG explorer and enter the value.
 - In the VRU hostname field, enter the hostname of Remote CVP server.
 - In the VRU Connect port field, enter **5000**.
 - In the Reconnect interval (sec) field, enter **10**.

- g) In the Heartbeat interval (sec) field, enter **5**.
- h) In the DSCP field, choose **CS3(24)**.
- i) Click **OK**.

Step 7 Refer to PG Explorer and Enter the value in the Logical Controller ID field.

Step 8 Enter **0** in the CTI Call Wrapup Data delay field.

Step 9 In the VRU Reporting pane, select **Service Control** and check **Queue Reporting**. Click **Next**.

Step 10 In the Device Management Protocol Properties dialog box, configure as follows:

- a) Click **Side A Preferred**, if you are configuring Side A, or click **Side B Preferred**, if you are configuring Side B.
- b) Choose **Call Router is Remote** in Side A Properties panel.
- c) Choose **Call Router is Remote** in Side B Properties panel.
- d) Accept the default value in the Usable Bandwidth (kbps) field.
- e) Enter **4** in the Heartbeat Interval (100ms) field. Click **Next**.

Step 11 In the Peripheral Gateway Network Interfaces dialog box, enter the PG Private Interfaces and the PG Public (Visible) Interfaces.

- a) Click the **QoS** button in the private interfaces section for Side A. In the PG Private Link QoS Settings, check **Enable QoS** and click **OK**. This step applies only to Side A.
- b) Click the **QoS** button in the Public (Visible) Interfaces section. In the PG Visible Link QoS Settings, check **Enable QoS**, click **OK**. This step applies only to Side A.
- c) In the Peripheral Gateway Network Interfaces dialog box, click **Next**.

Step 12 In the Check Setup Information dialog box, click **Next**.

Step 13 In the Setup Complete dialog box, click **Finish**.

Note Do not start Unified CCE/CC Node Manager until all Unified CCE components are installed.

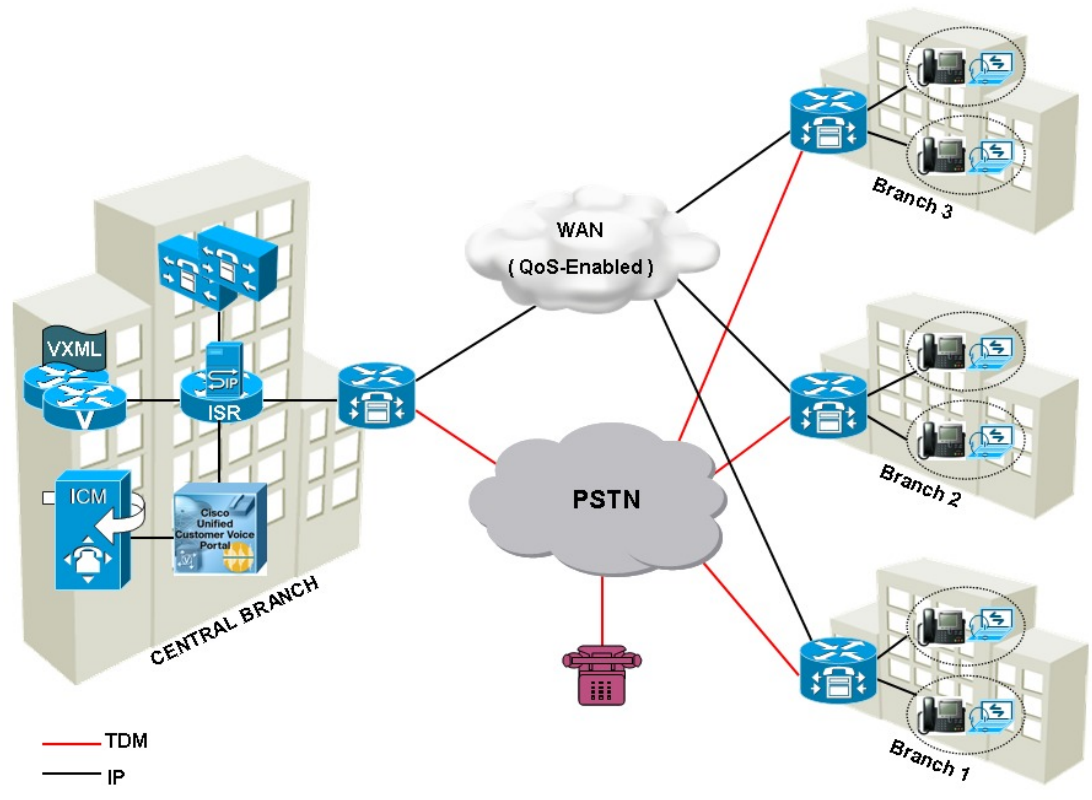
Configure Local Trunk

Complete the following procedures to configure Local Trunk.

- [Configure Unified CVP, on page 9](#)
- [Configure Unified Communications Manager, on page 10](#)

The following figure shows the Local Trunk configuration.

Figure 1: Local Trunk configuration



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Configure Unified CVP

Complete the following procedure to configure Unified CVP using Operation Console for local trunk:

Procedure

- Step 1** In **Device Management > Unified CM > Enable Synchronization for Location**, enable synchronization and provide the credentials required for login.
- Step 2** Choose **System > Location** and click **Synchronize** to retrieve the locations defined on Unified CM (Publisher).
- Step 3** Choose **System > Location** and verify that the locations have been synchronized from Unified CM (Publisher).
- Step 4** Choose **Device Management > Gateway** and define the gateways Ingress, VXML, and Voice Browser.
- Step 5** Choose **System > Location** and select a location:
 - a) Assign a Site ID and Location ID to the location, and then add the associated gateways Ingress, VXML, and Voice Browser to the location.
- Step 6** Choose **System > Location**; navigate to Call Server Deployment and select the Call Servers where you want to deploy configuration.
- Step 7** Click **Save and Deploy**.
- Step 8** For the insertion point of the SiteID, use the default location between the Network VRU label and the correlation ID.

Step 9 Choose **System > Dialed Number Pattern** to create static routes to send calls to the branch VXML gateway or Voice Browser. It appends the site ID to the Network VRU label of Unified CVP routing client.

Example:

Consider Unified CCE Network VRU label for Unified CVP routing client is 9999331010. For queuing purpose, CVP route sends the call that is originated from branch 1 phone to branch 1 VXML gateway or Voice browser, it uses "001" as a site code for branch 1. Also, this site code define the routes for ringtone and error to send to local branch VXML gateway or Voice Browser.

Configure Unified Communications Manager

Complete the following procedures to configure Unified Communications Manager for the Local Trunk.

- [Add Location, on page 10](#)
- [Verify Application User Roles, on page 11](#)
- [Configure SIP Profile for LBCAC, on page 11](#)
 - [Deploy SIP Trunk for Central Branch , on page 11](#)
 - [Deploy SIP Trunk for Local Branches, on page 12](#)
- [Configure Location Bandwidth Manager, on page 12](#)

Add Location

Procedure

- Step 1** Login to **Cisco Unified Communication Manager Administration** console.
- Step 2** Navigate **System > Location Info > Location**.
- Step 3** Click **Add New**.
- Step 4** In **Location Information** panel, enter the location name in **Name** field.
- Step 5** In **Links - Bandwidth Between This Location and Adjacent Locations** panel, enter the following.
- a) Select the location
 - b) Enter the bandwidth configurations.
- Step 6** Click **Save**.
-

What to do next

Select the created location on Phone, see [Add Phones](#).

Verify Application User Roles

Procedure

- Step 1** Login to **Cisco Unified Communications Manager Administration** page.
 - Step 2** Choose **Unified Serviceability** from **Navigation** drop-down list and click **Go**.
 - Step 3** Choose **Tools > Control Center > Feature Services**.
 - Step 4** Choose **Server** from the drop-down list.
 - Step 5** Start the **Cisco AXL Web Service**, if it is not started.
 - Step 6** Select **Cisco Unified CM Administration** from **Navigation** drop-down list and click **Go**.
 - Step 7** Choose **User Management > Application User**.
 - Step 8** Check if you have an application user with the role of Standard AXL API Access , in **Permissions Information** panel, if it is not there, create a new application user, or add the user to a group that has the role of Standard AXL API Access.
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Configure SIP Profile for LBCAC

Procedure

- Step 1** Log into the **Cisco Unified Communication Manager Administration** page.
 - Step 2** Navigate **Device > Device Settings > SIP Profile**.
 - Step 3** Click **Add New**.
 - Step 4** Enter a name for the SIP Profile.
 - Step 5** In **Trunk Specific Configuration** panel , select **Call-Info Header with the Purpose Equal to x-cisco-orig IP** from the **Reroute Incoming Request to New Trunk Based on** drop-down list.
 - Step 6** In the **SIP OPTIONS Ping** panel, check **Enable OPTIONS Ping to monitor destination status for Trunks with Service Type "None(Default)"** check-box.
 - Step 7** Click **Save**.
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Deploy SIP Trunk for Central Branch

Procedure

- Step 1** Create a SIP Trunk Security Profile, see [Create SIP Trunk Security Profile](#).
- Step 2** Create a SIP Trunk towards the CVP/SIP proxy server.

- Note**
- a. In step 5 of creating SIP Trunk procedure, select **Run On All Active Unified CM Nodes** check-box.
 - b. Associate the new SIP profile with the SIP trunk. See, [Create SIP Trunk](#).

This routes the Network VRU label of the Unified Communications Manager routing client to the Unified CVP Call Servers.

- Step 3** Create a route pattern pointing the Network VRU Label of the Unified Communications Manager routing client to the SIP trunk towards the CVP/SIP proxy, see [Add Route Pattern](#).
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Deploy SIP Trunk for Local Branches

Procedure

Create a SIP trunk for each ingress gateway and assign the location of these ingress TDM-IP gateways as the actual branch location.

- Note**
- a. In step 5 of creating SIP Trunk procedure, select **Run On All Active Unified CM Nodes** check-box.
 - b. Associate the new SIP profile with the SIP trunk. See, [Create SIP Trunk](#).
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Configure Location Bandwidth Manager

Procedure

- Step 1** Choose **Tools > Control Center > Feature Services** from Cisco Unified Serviceability.
 - Step 2** Start the **Cisco Location Bandwidth Manager**, if it is not started
 - Step 3** Choose **System > Location info > Location Bandwidth Manager group** from Cisco Unified CM Administration.
 - Step 4** Click **Add New** enter the name and select the active and standby member (CUCM node) and click **Save**.
-