



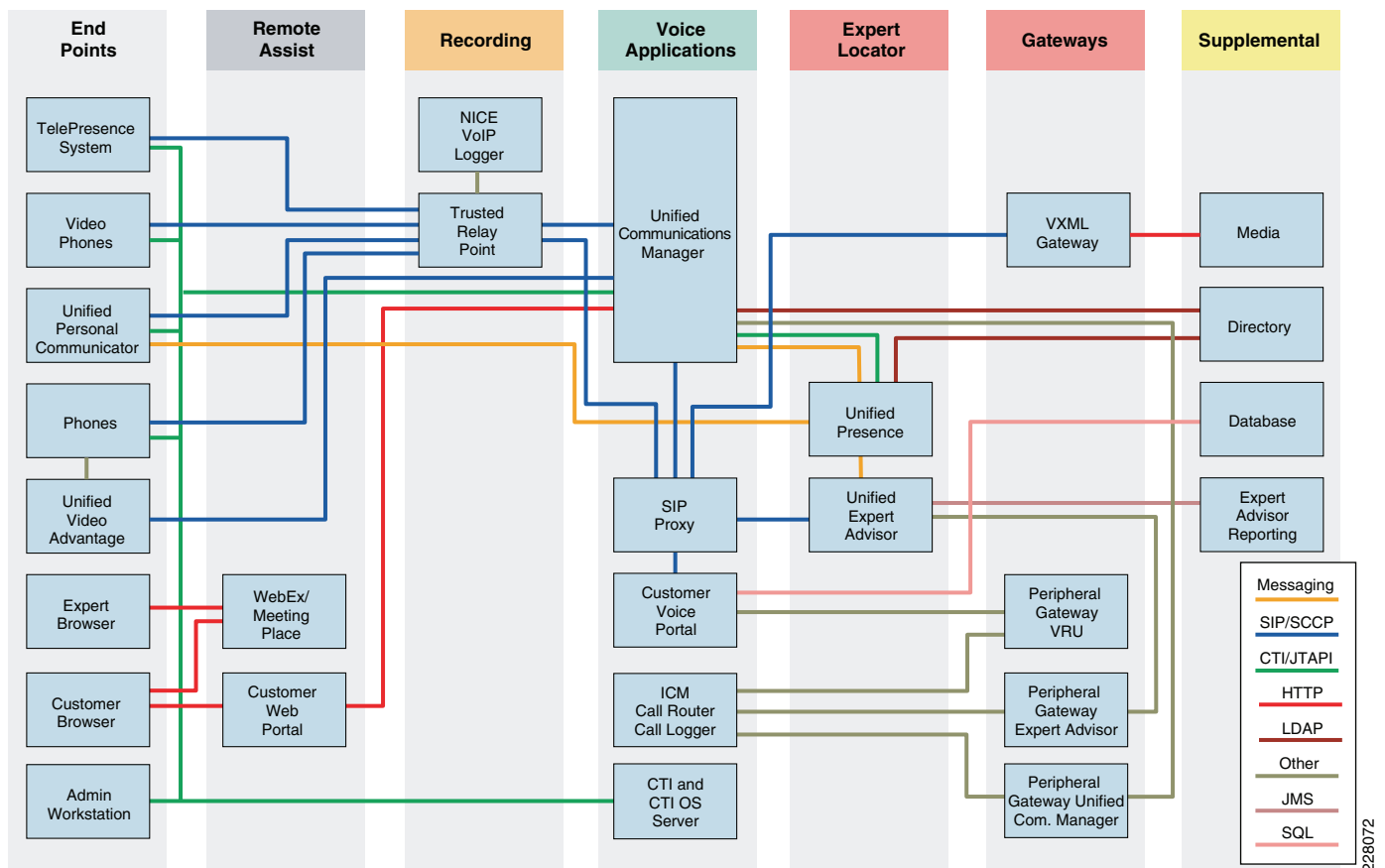
# APPENDIX B

## Quick Installation and Configuration Steps for Virtual Expert Management

### Introduction

This section is based on internal guides created by Laurent Pham and Shahazd Ali. It has been expanded to include all VEM components, and updated to reflect the specific settings and items used in the validation lab. [Figure B-1](#) depicts the components and endpoints that are covered.

**Figure B-1** Virtual Expert Management Protocols and Services



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## Prerequisites

Cisco recommends that you should have knowledge of the following topics:

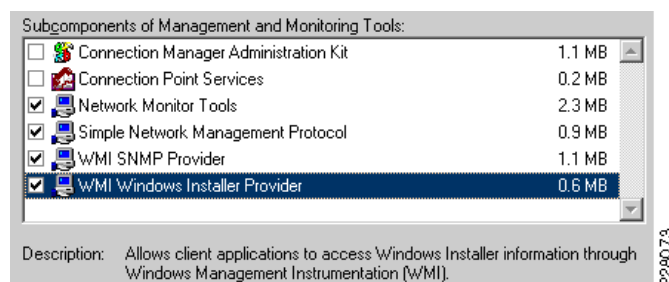
- Cisco Unified Communication Manager (CUCM)
- Cisco Unified Intelligent Contact Management (CUICM)
- Cisco Unified Cisco Voice Portal (CUCVP)
- Cisco Voice Gateways and VXML Gateways
- Cisco Unified Expert Advisor
- Cisco Unified Presence and SIP Proxies
- Cisco Unified TelePresence
- Cisco Unified Video Advantage
- Cisco Unified MeetingPlace
- Cisco WebEx Meeting
- Cisco WebACD
- Cisco WebEx Access Anywhere

## Preparing the Environment

### System Information

- This guide assumes that CUCM is installed and configured with appropriate endpoints. For a quick guide to install and configure CUCM with CVP and VXML GW, refer to the following URL: <https://supportforums.cisco.com/docs/DOC-1374>
- All domain controllers in your domain or forest must be running Windows Server 2003 with the domain functional level set to Windows Server 2003, thereby all domain- and forest-wide features needed are available.
- Before installing ICM software components, the computers must have the Microsoft Windows operating system—including SNMP and (for Windows 2003) WMI and, for some components, Microsoft SQL Server database management software installed. See [Figure B-2](#).

**Figure B-2**      **System Installer**



- This installation includes setting up the Windows Active Directory services for ICM software. Setting up Active Directory entails adding the Cisco Root Organizational Unit, one Facility Organizational Unit, and one Instance Organizational Unit to the Active Directory Schema. These steps require domain admin-level access.

For more information, refer to the *Staging Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* and the *SNMP Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* at the following URLs:

[http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod\\_technical\\_reference\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_technical_reference_list.html)

[http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_installation_and_configuration_guides_list.html)

CCE components that operate on Cisco IPT Windows OS 2003 Enterprise Edition must also have the following services installed and started:

- DNS Service—Required for AD
- Replication Service—Required for AD
- Task Scheduler Service—Required for ICM Installation
- Install WMI Windows Installer Provider—Required for ICM Router Installation
- NT LM Security Support Provider—Required for AD
- File Replication—Required for AD

The CUICM components Router, Logger, AW, PG, and CTIOS Server must communicate with the Active Directory server and join a domain. In this validation setup, the Active Directory Domain Controller and DNS Server are already set up and have been used in previous solutions. For more information on installing and setting up Active Directory, refer to the Windows 2003 server administration guides.

SQL server is a required component for the Logger platform. Installation of this software is covered in the *Staging Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* referenced above.

ICM software requires Microsoft SQL Server databases on each Logger, Historical Data Server (HDS), and each Real-time Distributor Admin Workstation (SQL Server is not required for Client AWs). SQL Server must be installed on each of these computers before you install the ICM software.

## Virtualization Support

Beginning with Cisco Unified ICM and Unified Contact Center Enterprise and Hosted Editions Release 7.5(3), servers can be consolidated by deploying a virtualization solution for Client Administrative Workstations (AWs) and certain Peripheral Gateways (PGs) on the VMware platform. For the virtualization requirements, mapping to discrete servers, and CPU processor and RAM requirements for each of the supported PG and Client AW virtual machines (VMs), refer to the latest version of the *Hardware & System Software Specification (Bill of Materials) for Cisco ICM/IPCC Enterprise & Hosted Editions*, available at the following URL:

[http://www.cisco.com/en/US/products/sw/custcosw/ps1844/products\\_implementation\\_design\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1844/products_implementation_design_guides_list.html)

Before you incorporate virtual machines into your contact center design and deployment, you must read through and follow the guidelines and restrictions described in the *Virtualization Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*, available at the following URL:

[http://www.cisco.com/en/US/products/sw/custcosw/ps1844/products\\_user\\_guide\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1844/products_user_guide_list.html)

Other Unified ICM and Unified CCE components, such as the CallRouter, Logger, AW Distributor, HDS, WebView Server, and CAD Server, as well as the Cisco Unified Contact Center Management Portal (Unified CCMP), and Cisco Unified Intelligence Suite, are not supported in a virtualized environment at this time.

## Hardware Components

The following are the hardware components of the IPCC laboratory system:

- Two Cisco 794x/796x/797x series IP phones as Expert Advisor user phones
- One MCS Server for CUCM
- Two servers running Windows 2003 Enterprise Edition for CUICM Enterprise Components in duplex mode:
  - Router
  - Logger
  - AW
  - CUCM PG
  - CVP VRU PG
  - CTIOS Gateway or CTIO PG
  - CTIO Server
- Windows 2003 Enterprise Edition-based server running the following CVP components:
  - CVP Call Server
  - CVP Media Server
  - Microsoft IIS Web Server
- One MCS server for Cisco Unified Presence
- One MCS server for Cisco Unified Expert Advisor
- Windows XP based agent PC
- Cisco 3845 Router
  - Ingress PSTN Gateway
  - VXML Gateway
- PSTN Simulator (CUCME gateway with cross over T1 PRI cable connected to CVP Gateway could be used)

Unified CCE 7.5(1) components are supported only on Cisco MCS or MCS-equivalent servers. For further specifics on hardware requirements including recommended platform sizing guidelines (not specific brands or models of servers), based on the types of available hardware systems, refer to the *Hardware and System Software Specification (Bill of Materials) for Cisco Unified ICM/Unified Contact Center Enterprise & Hosted, Release 7.5(1)* at the following URL:

[http://www.cisco.com/en/US/products/sw/custcosw/ps1844/products\\_user\\_guide\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1844/products_user_guide_list.html)

## Software Components

The software release is based on the system Release 7.1(3):

- Cisco IOS Software Releases 12.4(24)T1 Voice Feature Set on the VXML Gateway
- Cisco Unified Communication Manager version 7.1(3)
- Cisco Unified Presence Server 7.0(5)
- Cisco Unified ICM version 7.5(6)
- Cisco Unified CVP version 7.0(2)
- Cisco Unified Expert Advisor 7.6(1) SR1
- Cisco CTI Object Server 7.5(6)
- JTAPI Client version is CUCM bundled

## Installation

The following component need to be installed:

- Install CUCM (Publisher and Subscriber)
- Install TelePresence endpoints
- Install CCE / ICM
- Install CVP
- Install CUP and CUPC Clients
- Install EA

Pre-requisite:

- Be familiar with CUCM, Unified CCE, and Unified CVP

**Note**

This appendix does not cover the basic installation of Unified CCE and Unified CVP. It assumes you have basic knowledge of CUCM, Unified CCE, and Unified CVP.

## CUCM Installation

- In VMWare environment, a minimum of 72 GB disk is required
- Version: 7.1.3.10000-11
- Make sure the CTI Manager and Cisco AXL Web services are running

## CCE Installation

To install 7.5(6), 1 UCCE 7.5(1), many need to be installed first and then upgraded to 7.5(6) (the upgrade is available on [cisco.com](http://www.cisco.com)).

The full installation and design guidance for the Cisco Unified Contact Center Enterprise can be found in the *Cisco Unified Contact Center Enterprise Solution Reference Network Design (SRND)*. The system prerequisites are also covered in the *Staging Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*. For details, refer to the following URLs:

[http://www.cisco.com/en/US/solutions/ns340/ns414/ns742/ns818/landing\\_contact\\_ctr.html](http://www.cisco.com/en/US/solutions/ns340/ns414/ns742/ns818/landing_contact_ctr.html)

[http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod\\_technical\\_reference\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_technical_reference_list.html)

The ICM Setup program allows you to install, update, and configure your ICM software. It is located on your ICM CD. Run Setup on each machine in the ICM system: each CallRouter, each Logger, each Peripheral Gateway (PG), and each Admin Workstation. At initial installation, a local version of the Setup program is installed on each ICM component at **vicm\bin\ICMSetup.exe**. (On an Admin Workstation, the Cisco Admin Workstation group contains an icon for this program.)

In order to run Setup, you must be a local.

Installation of each of the ICM components is performed through the ICMSetup application. This application is located in the **ICM\bin** directory of the DVD as well as the ICM directory after an installation has already been accomplished.

After executing the ICMSetup program, the **ICM Component Selection dialog** box appears where the buttons used to install the components are displayed. The following components were used in the validation testing:

- Admin Workstation
- Router
- Logger
- Peripheral Gateway
- CTI Server
- CTI OS Server

## About the ICM Setup Program

The ICM Setup program allows you install, update, and configure your ICM software. It is located on the ICM CD. Run Setup on each machine in the ICM system: each CallRouter, each Logger, each Peripheral Gateway (PG), and each Admin Workstation. At the initial installation, a local version of the Setup program is installed on each ICM component at **vicm\bin\ICMSetup.exe**. (On an Admin Workstation, the Cisco Admin Workstation group contains an icon for this program.)

In order to run Setup, you must be a local administrator and belong to the setup group for any instance that you are installing a component.



### Note

During the installation of the Central Controller and Administration and WebView Reporting, the ICM installer checks to see whether there is a Microsoft.NET Framework 3.5 installed. If it is not installed, Setup will install it. After the installation of the Microsoft.NET Framework 3.5, it might prompt you to reboot the system. If prompted, reboot the system and run Setup again.

## About ICM Component Installation Order

You can install the various components in the order in which they are treated in this appendix. In general, there is a great deal of flexibility in the order of installation, provided that you know the names and locations for the various components beforehand. However, the following presents the standard approach:

- 
- |               |   |
|---------------|---|
| <b>Step 1</b> | Install either the CallRouter or the Logger first. It does not matter in which order you install the CallRouter and Logger.   |
| <b>Step 2</b> | Install both the CallRouter and the Logger before you install an Admin Workstation (AW).  |
| <b>Step 3</b> | ICM Setup and Installation Guide Cisco Unified ICM/Contact Center Enterprise & Hosted 7.5(1)  |
| <b>Step 4</b> | If you are using WebView, install it after you have installed the Real-time Distributor AW.   |
| <b>Step 5</b> | Install the CallRouter, Logger, and AW before you install the Network Interface Controller (NIC) and Peripheral Gateway (PG), but it does not matter in which order you install the NIC and PG. |
| <b>Step 6</b> | Install the CTI Server after you have installed the CallRouter, Logger, AW, NIC, and PG.  |
- 

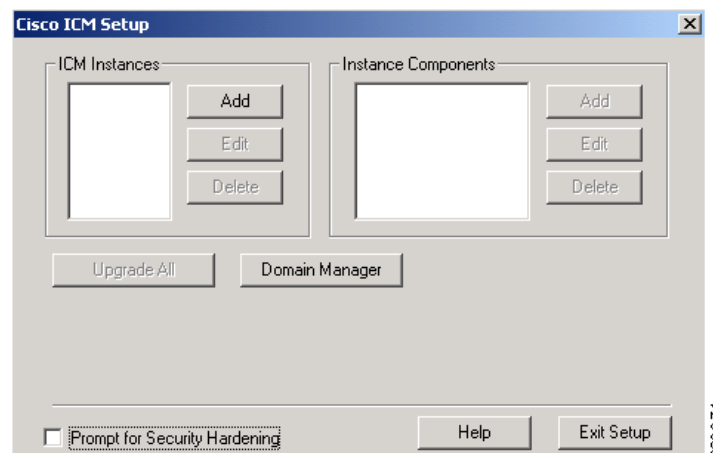
## Creating an ICM Instance

- Before any ICM components can be installed and ICM instance must first be created
- Before an instance can be selected the proper entries must first be created in the domain using the Domain Manager

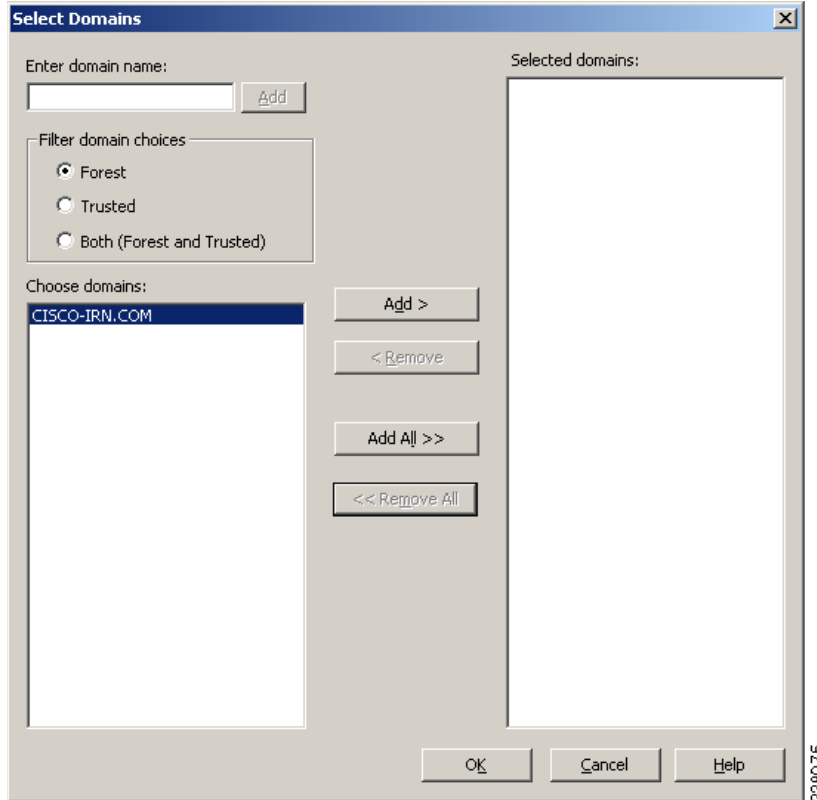
## Configure Domain Manager

- 
- |               |  |
|---------------|--|
| <b>Step 1</b> | Start the Cisco Unified ICM installation by running the <b>ICMSetup.exe</b> application on the CD or local directory as appropriate. |
| <b>Step 2</b> | Click the <b>Domain Manager</b> . See <a href="#">Figure B-3</a> .   |

**Figure B-3 Domain Manager**

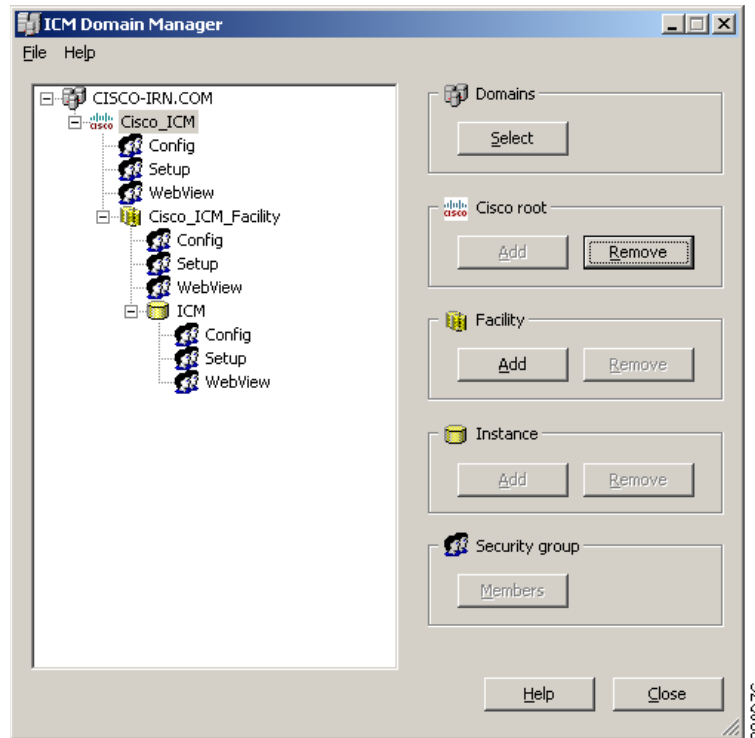


- |               |  |
|---------------|--|
| <b>Step 3</b> | Select the desired domain from the list on the left and click <b>ADD</b> , then click <b>OK</b> . See <a href="#">Figure B-4</a> . |
|---------------|--|

**Figure B-4**      **Selecting Domain**

- Step 4** After the domain is selected, click **Add** it under the Cisco root section. Enter an appropriate name such as **Cisco\_ICM** and click **OK**.
- Step 5** With the new root selected, click the **ADD** button under the Facility option. Enter an appropriate Facility name such as **Cisco\_ICM\_Facility** and click **OK**.
- Step 6** Once the Facility has been added, select it and click **Add** under the Instance option. Enter an instance name such as **ICM** and click **OK**. See [Figure B-5](#).



**Figure B-5 Adding Instance Name**

**Step 7** After adding the root, facility and instances click **close**. After the domain components have been created, you can then add the instance in the ICM setup.

At least one ICM instance must be added before you can install any ICM components.

**Note**

Before you can create an ICM instance, you **must** have set up the Windows Active Directory services for ICM software. You must also have added the Cisco Root Organizational Unit, and at least one Facility Organizational Unit with one Instance Organizational Unit. Refer to the *Staging Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

**Step 8** In the Cisco ICM Setup dialog box, in the ICM Instances section, click **Add**. The Add Instance dialog box opens:

- a. Select the network **Domain** for the instance.
- b. Select the **Facility** Organizational Unit for the instance.
- c. Select the **Instance Name** for the instance.

**Note**

The ICM Instance Name is the name of the Instance Organizational Unit.

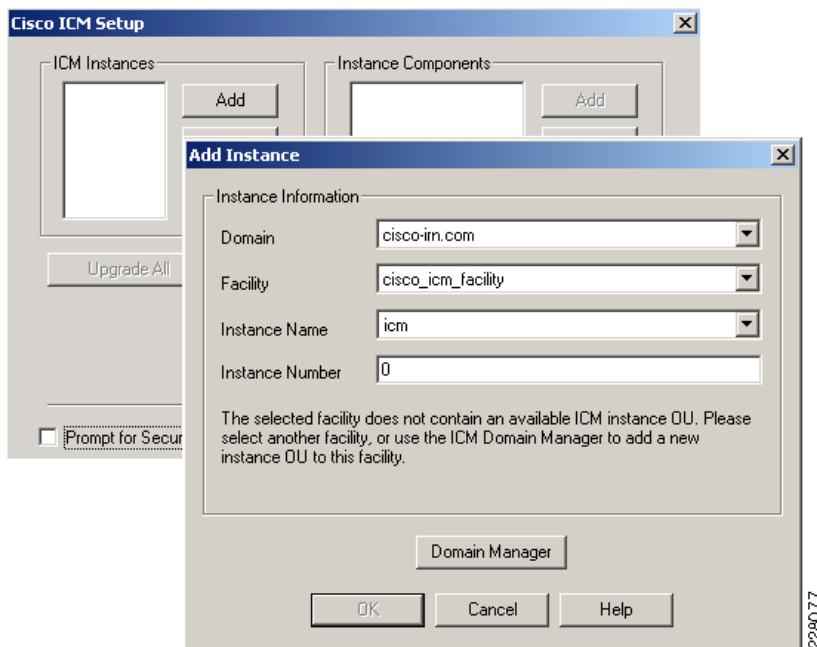
Use the **Instance Number** generated by the ICM software. (For standard single-instance ICM configurations, the instance number is 0.)

**Note**

The mappings of instance names to instance numbers must be the same on every node in the system.

**Step 1** Click **OK**. See [Figure B-6](#).

**Figure B-6** Creating an Instance



**Step 2** You can now add ICM Instance components. First create and install Router and Logger ICM Servers. When installed together they are commonly referred to as a Rogger Server.

Refer to Chapters 5 and 6 of the *ICM Setup and Installation Guide* at the following URL:

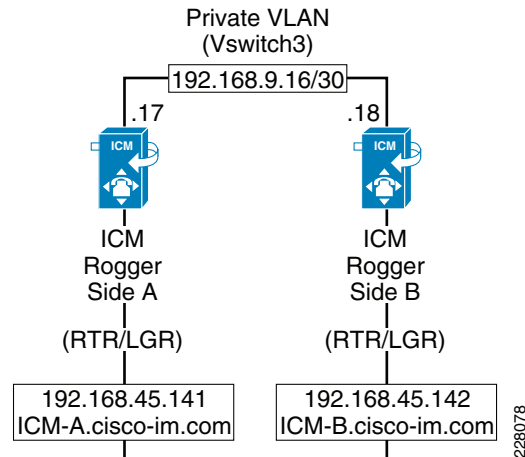
[http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/cust\\_contact/contact\\_center/icm\\_enterprise/icm\\_enterprise\\_7\\_5/installation/guide/icm75instl.pdf](http://www.cisco.com/en/US/docs/voice_ip_comm/cust_contact/contact_center/icm_enterprise/icm_enterprise_7_5/installation/guide/icm75instl.pdf)

## Install the Router and Logger

### Call Router Installation

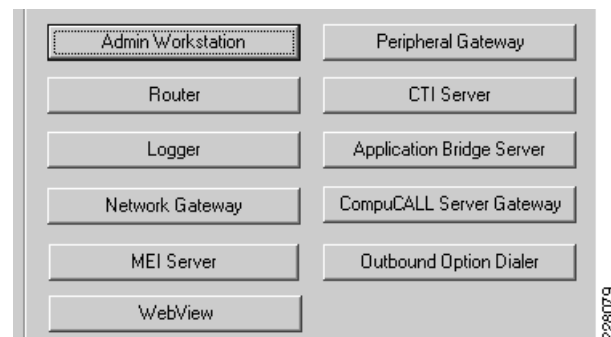
The CallRouter (generally referred to in this document simply as the *Router*) is the component that contains the contact routing logic and makes all routing decisions. It receives contact routing requests and determines the best destination for each contact. It also collects information about the entire system. This appendix explains how to install the CallRouter software and perform some basic configuration. For this configuration, you must know the visible and private network addresses (either host names or IP addresses) of the CallRouter and, for a duplexed configuration, the addresses of the CallRouter on the other side. The CallRouter and Logger are typically on separate computers. However, in small contact center configurations they can both be on the same computer. See [Figure B-7](#).

**Figure B-7 Router and Logger Servers**



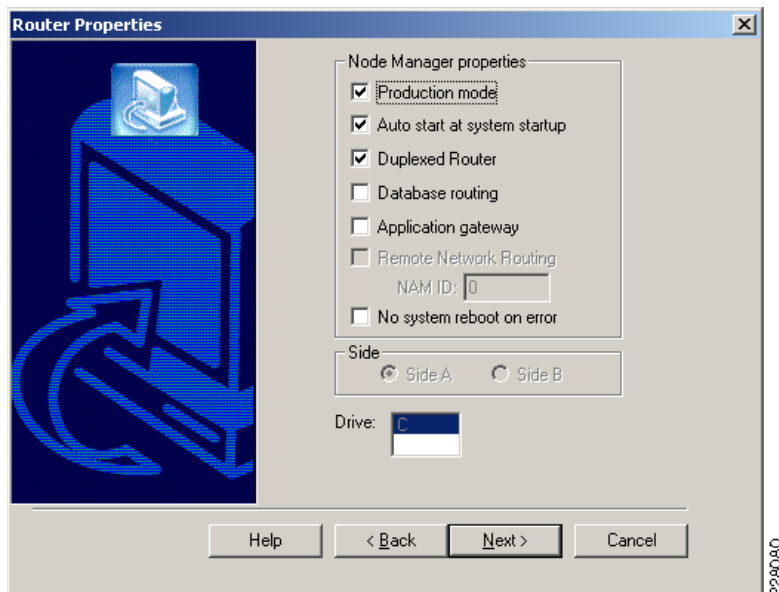
**Step 1** In the ICM Setup application, click the **Add** button on the right under **Instance Components**. See [Figure B-8](#).

**Figure B-8**



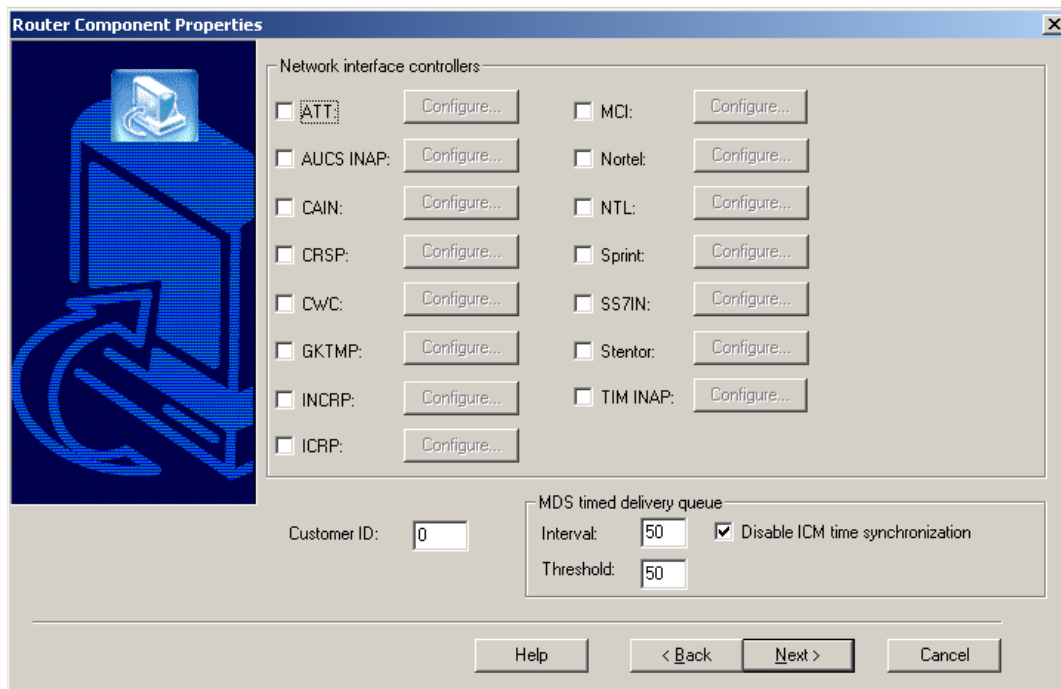
A new dialogue window will appear where you will be able to select the Router component. See [Figure B-9](#).

Figure B-9



- Step 2** For high availability installations select the **Duplexed Router** option and click **Next**. Do not select any Network Interface Controllers. Leave all the options as default. The Customer ID is insignificant for this solution. See [Figure B-10](#).

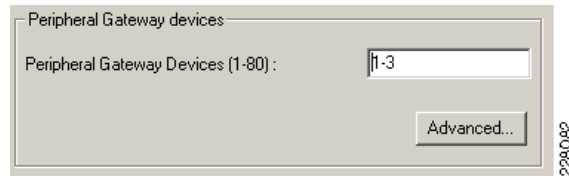
Figure B-10



- Step 3** Click **Next**. For the lab validation, two peripheral gateways were used; one for CUCM and another as VRU PG for CVP and expert advisor.

The number of PGs must be entered as a range or comma separated list. For the two PGs, it could be entered as either “1-2” or “1,2”. See [Figure B-11](#).

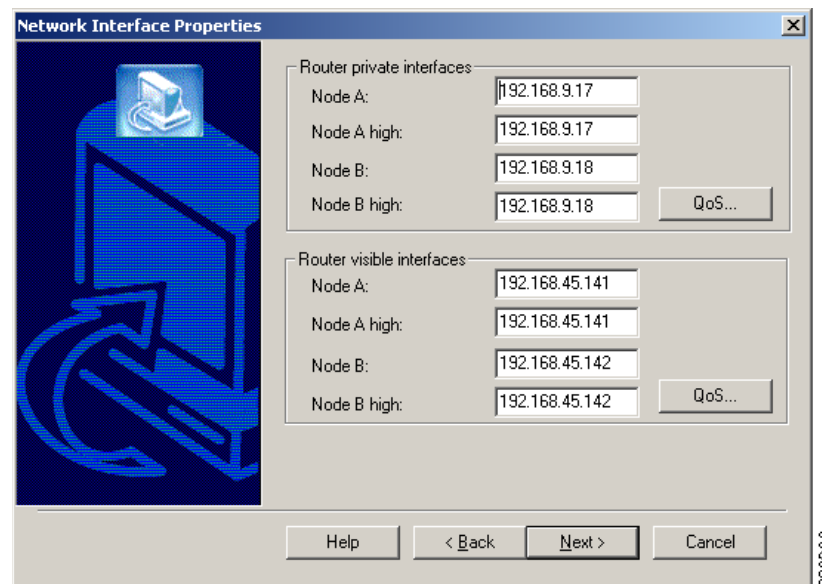
**Figure B-11**



**Step 4** Accept the current settings and click on **Next** for the following screens.

It is best practice to use IP addresses rather the hostnames when identifying the public and private interfaces for the Router. The following image and other similar installation screens during CUICM component installation will be similar. See [Figure B-12](#).

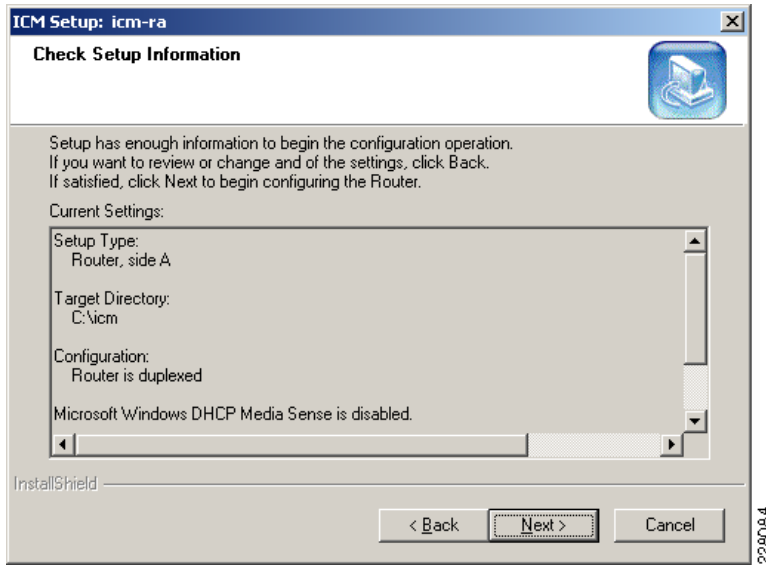
**Figure B-12**



**Note** If the CallRouter is simplexed, enter **localhost** in both the **B** and **B high** fields.

**Step 5** After entering the Router interface IP addresses click **Next**. See [Figure B-13](#).

Figure B-13



- Step 6** At the ICM setup, review the installation settings and click *Next* to complete the installation of the Call Router.

## Logger Installation

In the ICM Setup application, click the **Add** button on the right under "Instance Components". A new dialogue window appears where you will be able to select the Logger component. See [Figure B-14](#) and [Figure B-15](#).

Figure B-14

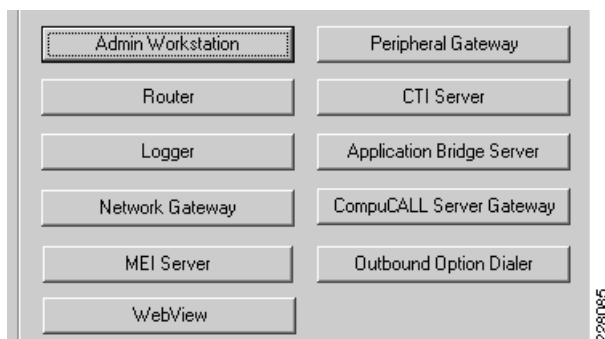
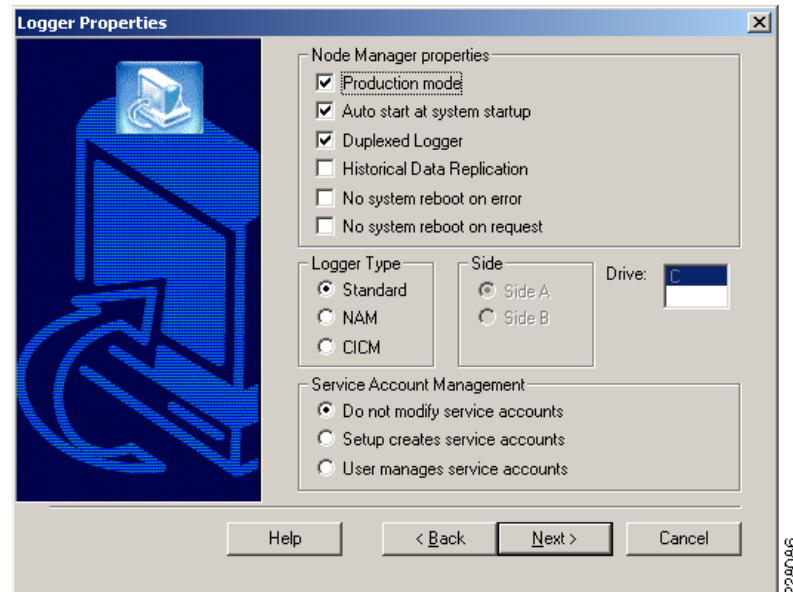
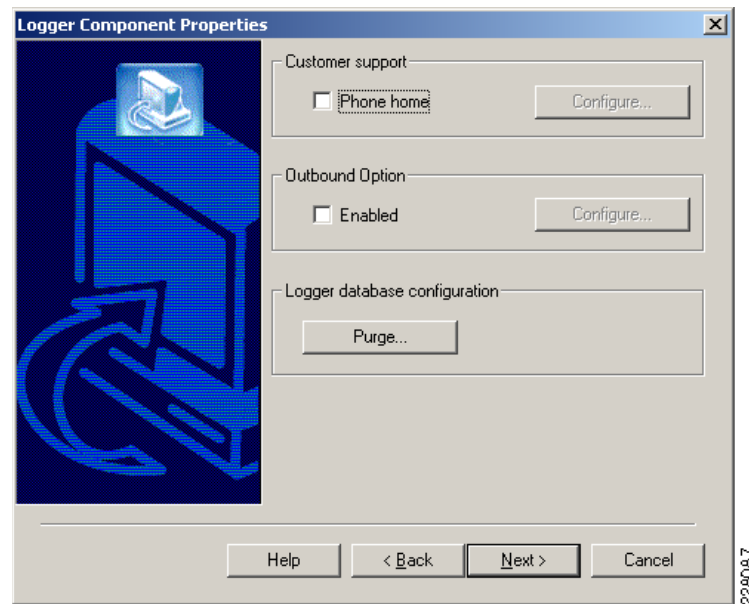


Figure B-15



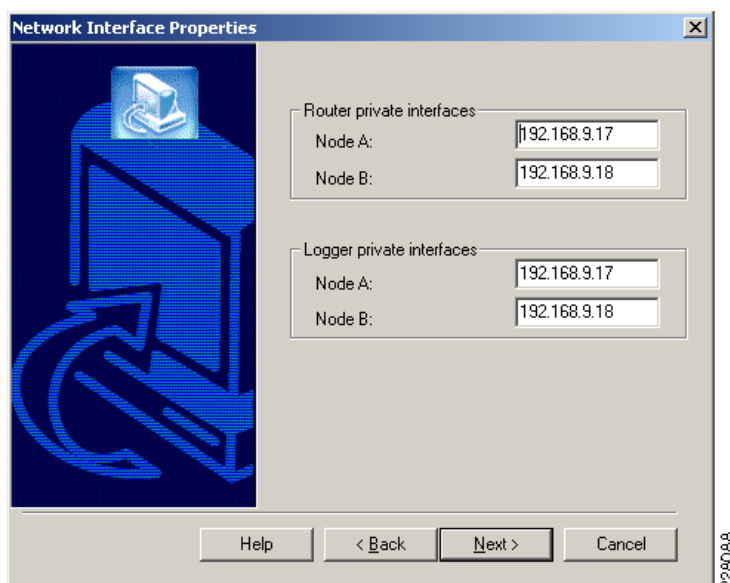
**Step 7** Select production, Auto startup and Duplexed logger options, then click **Next**. See [Figure B-16](#).

Figure B-16



**Step 8** Click **Next**. See [Figure B-17](#).

Figure B-17



**Step 9** Configure the public and private Router and Logger interfaces using the IP address. Click **Next**.

**Step 10** At the end of the ICM setup, review the installation settings and click **Next** to complete the installation of the Call Logger.

## Create ICMDDB on Logger

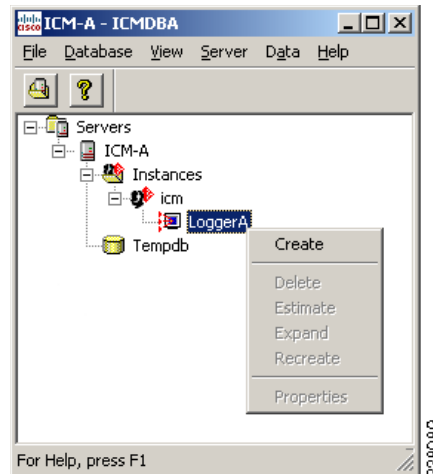
You must create a database for each Logger, it is best to do this before installing other components. To create the database and determine the appropriate size of the database, run the ICM Database Administration (ICMDBA) tool. This tool is installed on each ICM component that has an installed database (ICMDBA is in the `\icm\bin` directory) and on each Admin Workstation.

For more information on using the ICMDDBA tool, refer to the *ICM Administration Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

Once the proper size is determined, run the `icmdba.exe` file from the local ICM directory to create and configure the new database. See [Figure B-18](#).



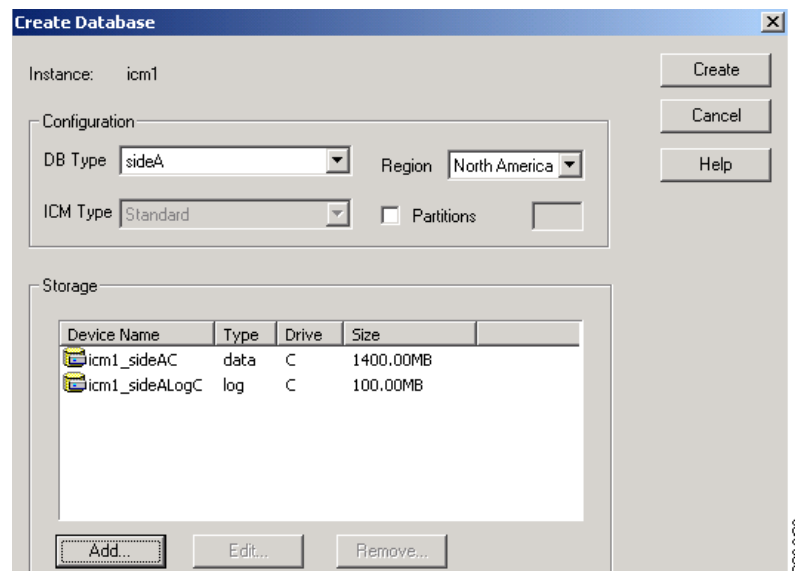
Figure B-18



If you are prompted that the SQL Server is not configured properly, click **yes** and then set the memory requirement to 0 and the recovery interval to 1. As this may have interrupted the installation process, you will see that no new database has been created. You need to once again select **Create** under the database option.

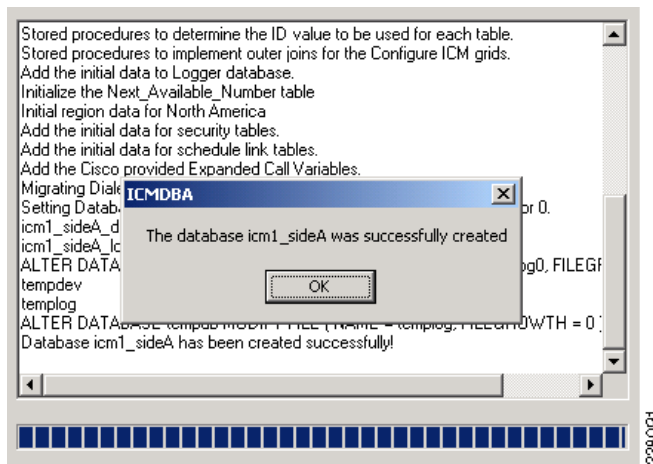
This time all the necessary changes have been made, you will be able to create the database. Now add the data and log databases to the list and create the database. See [Figure B-19](#).

Figure B-19



You will notice a screen similar to screen shown in [Figure B-20](#) and once the database is created successfully click **OK**.

Figure B-20

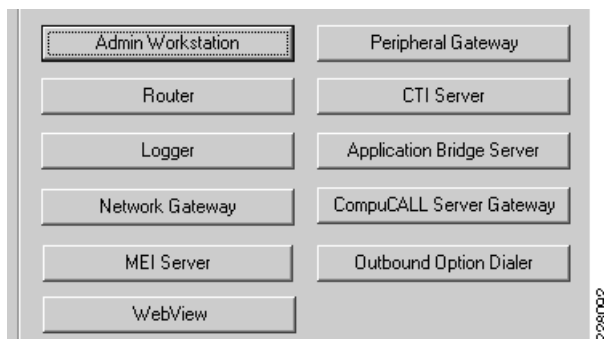


## Installing the Admin Workstation

After completing the installation of the Router and Logger, the Admin Workstation can be set up. The Admin workstation is configured before the other PGs as it assigns the IDs needed for the Router, Logger, and PGs to communicate through.

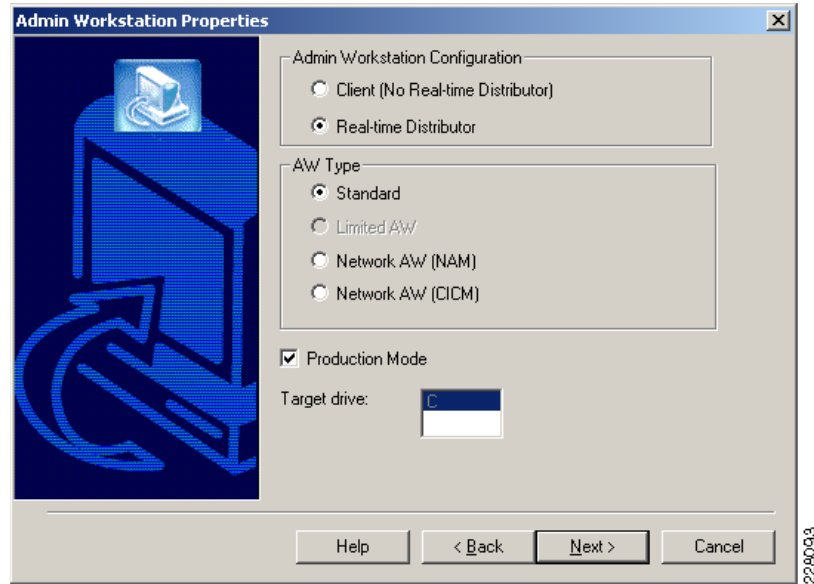
The Admin Workstation (AW) is the human interface to the ICM software. It serves as a control console where you can monitor agent and contact center activity and change how the ICM software routes contacts. For example, you can use the Admin Workstation to configure the ICM contact center data and to create routing scripts. Admin Workstations can be located anywhere, as long as they have LAN, WAN, or dial-up connections to the ICM software. Typically, the Admin Workstation is installed on a Windows operations console used by system administrators, not the Router, Logger, or other ICM server systems. It requires an SQL database and must be a member of the Active Directory Domain. See [Figure B-21](#).

Figure B-21



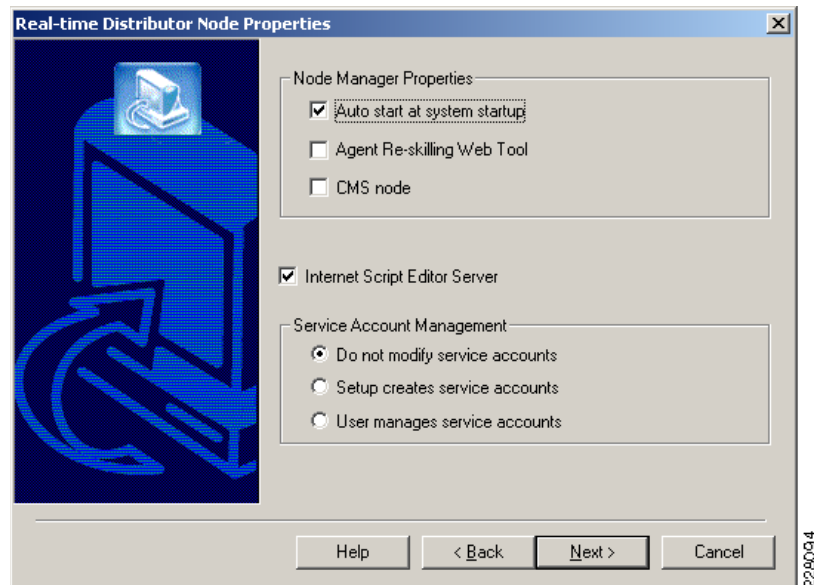
- Step 1** From the ICM Setup applications, select **Add** for the ICM instance and then “**Admin Workstation**”. See [Figure B-22](#).

Figure B-22



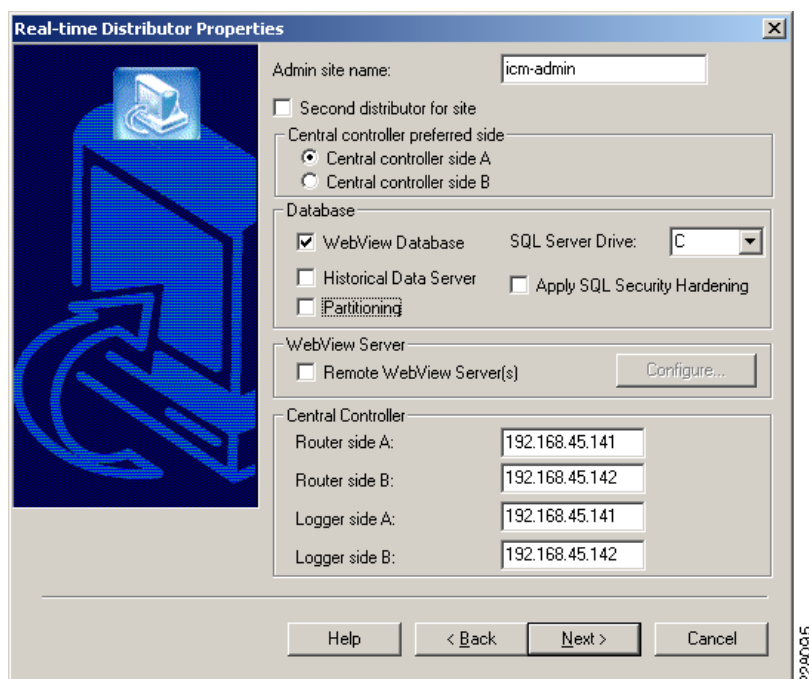
**Step 2** Select Next. See [Figure B-23](#).

Figure B-23



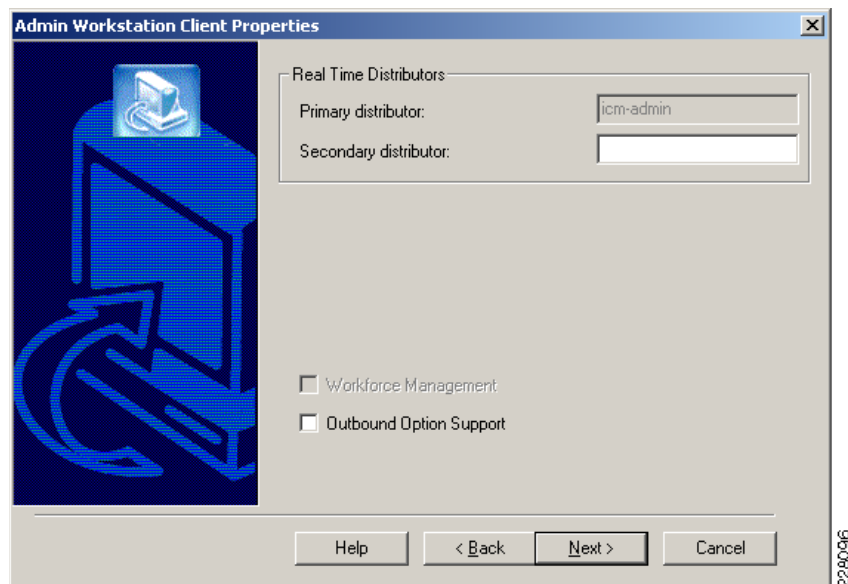
**Step 3** Select Next. See [Figure B-24](#).

Figure B-24



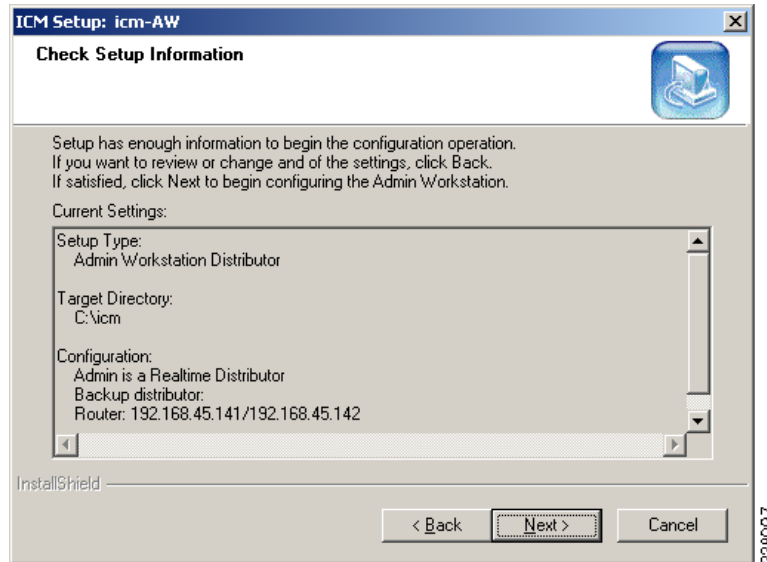
**Step 4** Select **Next**. See Figure B-25.

Figure B-25



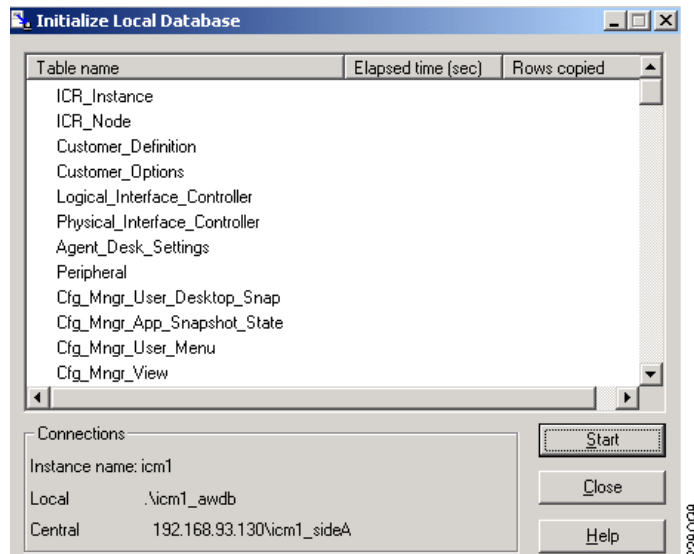
**Step 5** Verify Setup parameters and select **Next** to finish. See Figure B-26.

Figure B-26



**Step 6** After the AW installation is complete, you must initialize the local database. The initialize database dialogue will appear after the Admin Workstation module installation is completed. See [Figure B-27](#).

Figure B-27



When you install a Distributor Admin Workstation, ICM Setup automatically sizes and creates a local database on the machine. Because this database is constantly overwritten by new data, the database size remains fairly constant. You normally do not need to resize the Distributor Admin Workstation (AW) real-time database. If you do need to resize the Distributor AW database, you can do so using the ICM Database Administration (ICMDBA) tool.

## AW Configuration Manager CUCM PG Setting

Each peripheral communicates with ICM software through a Peripheral Gateway, called a PG. The PG is a computer that communicates directly with the ACD, PBX, VRU, or Call Manager at a contact center, monitoring status information from the peripheral and sending it to the ICM system's Central Controller. If the peripheral acts as a routing client, the PG sends routing requests to ICM software.

The PG can be a single-simplex computer or a pair of duplexed computers. A single PG can service more than one peripheral; however, each peripheral uses only one PG.

**Note**

Although a PG can consist of a pair of duplexed computers, only one of them is active at a time, so that ICM software sees it as a single logical and physical PG.

### Primary CTI OS Server

Before adding the peripheral gateways to the CUCCE Servers, they must first be created in the Admin Workstation Configuration Manager. This generates the peripheral IDs that are necessary for the PG/PIM installations.

To create the peripheral gateways in Configuration Manager there must first be an Agent Desk Settings List entry as it is one of the required settings under a PG controller configuration.

Create a new Agent Desk Settings list as follows:

- 
- Step 1** Open the Configurations Manager on the AW.
  - Step 2** Select the **Agent Desk Settings List** option under the **Tools > Explorer Tools** group.
  - Step 3** Click **Retrieve**.
  - Step 4** Click **Add**.
  - Step 5** Enter an appropriate list name such as **Agent\_Desk\_Settings\_1**.
  - Step 6** Enter a proper description.
  - Step 7** Set the Ring no Answer time to **10**.
  - Step 8** Set the Wrap up time to **20**.
  - Step 9** Click **Save**. See [Figure B-28](#).

Figure B-28

To create the peripheral gateways in Configuration Manager, there must also be an Media Routing Domain list entry as it is one of the required settings under a PG controller configuration.

Create a new Agent Desk Settings list as follows:

- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **Media Routing Domain List** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.
- Step 4** Click **Add**.
- Step 5** Enter an appropriate list name such as **Cisco\_Voice**.
- Step 6** Enter a proper description.
- Step 7** Set the Media Class to **Cisco\_Voice**.
- Step 8** Click **Save**. See [Figure B-29](#).

Figure B-29

Attributes

Name \* Cisco\_Voice

Media routing domain ID \* 1

Media class \* Cisco\_Voice

Task

Life 0 seconds ☒ Override Media Class Default

Start timeout 0 seconds ☒

Max duration 0 seconds ☒

Calls in Queue

Max

Max per call type

Max time in queue seconds

Service level threshold \* 30

Service level type \* Ignore Abandoned Calls

Interruptible ☐

Description Default Media Routing Domain for Cisco\_Voice

Save Close Help

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Once the Agent Desk setting list and the Media Routing Domain have been created, the new PG logical controllers for the Call Manager, CVP, and Expert Advisor can be created.

There are several methods for creating PGs and their underlying Peripheral Interface Managers (PIMS). For this solution, two PGs are created. One PG is generic and have the CUCM and VRU\_CVP PIMS, the other PG is for Expert Advisor and have the EA PIM. Each ICM server set that is deployed can have a maximum of two Peripheral Gateways. The PG Explorer on the AW Configuration Manager generates and maintains PG records for a logical interface controller, a physical interface controller, associated peripherals, and, if appropriate, an associated routing client.

Create the first peripheral gateway logical controller as follows:

- 
- Step 1** Open the Configurations Manager on the AW.
  - Step 2** Select the **PG Explorer** option under the **Tools > Explorer Tools** group.
  - Step 3** Click **Retrieve**.
  - Step 4** Click **Add PG**.
  - Step 5** Enter an appropriate name such as **Generic\_PG\_1**.
  - Step 6** Enter a proper description.



- Step 7** Set the client type to **PG Generic**.
- Step 8** Set the IP address for the primary and secondary CTI Servers.
- Step 9** Click **Save**.

After clicking **Save**, the logical and physical controller IDs will be automatically generated. Note them for later use when installing the peripheral gateways in ICMSetup later. See [Figure B-30](#).

**Figure B-30**

After creating the logical controller, the first of the underlying peripherals can now be added as follows:

- Step 1** Select the **Generic\_PG\_1** PG that was just added from the PG explorer results on the left.
- Step 2** Click **Add Peripheral**.
- Step 3** Enter an appropriate peripheral name such as **CCM\_PIM\_1**.
- Step 4** Select the Client Type as **CallManager/SoftACD**.
- Step 5** Select the Default Desk Settings option that was created earlier **Agent\_Desk\_Settings\_1**.
- Step 6** Enter a proper description.
- Step 7** Check the **Enable post routing** option.
- Step 8** Then Click **Save**.

After clicking **Save** the peripheral ID will be automatically generated; note it for later use when installing the peripheral gateways in ICMSetup. See [Figure B-31](#).

Figure B-31

Skill Group Mask	Routing client	Default route	Peripheral Monitor
Peripheral	Advanced	Agent Distribution	
Peripheral ID:	★ 5000		
Name:	★ CCM_PIM_1		
Peripheral name:	★ CCM_PIM_1		
Client type	★ CallManager/SoftACD		
Location:			
Abandoned call wait time:	★ 5		
Configuration parameters:			
Call control variable map:			
Default desk settings:	Agent_Desk_Settings_1		
Peripheral service level type:	★ Calculated by Call Center		
Description:	VEM based CCM		
Enable post routing:	<input checked="" type="checkbox"/> Peripheral auto configured: <input type="checkbox"/>		
<div> <input type="button" value="Save"/> <input type="button" value="Close"/> <input type="button" value="Help"/> </div>			

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Select the Routing Client tab and enter the following information for the peripheral:

- 
- Step 1** Enter an appropriate name and Peripheral name such as **CUCM\_RC**.
  - Step 2** Select the Client Type as **PCC/Enterprise Agent**.
  - Step 3** Select the Default media routing domain option to **Cisco\_Voice**.
  - Step 4** Enter a proper description.
  - Step 5** Click **Save**. See [Figure B-32](#).

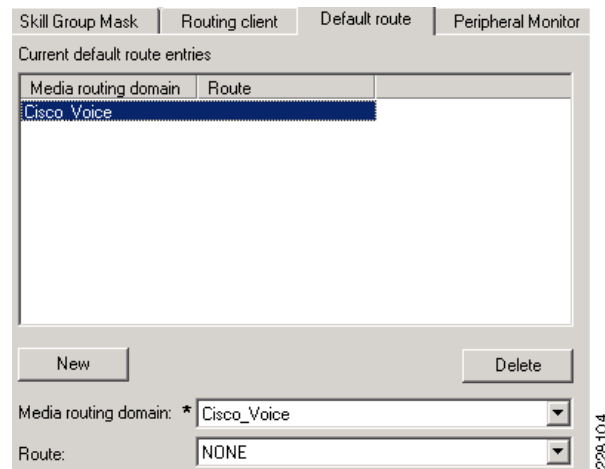
Figure B-32

Peripheral	Advanced	Agent Distribution
Skill Group Mask	Routing client	Default route
	Peripheral Monitor	
Name:	★ CUCM_RC	ID: ★ 5000
Timeout threshold:	★ 1500	
Late threshold:	★ 500	
Timeout limit:	★ 10	
Default media routing domain:	Cisco_Voice	
Default call type:	NONE	
Configuration parameters:		
Dialed Number/Label map:	★ Do not use DN/Label map	
Client type:	★ IPCC / Enterprise Agent	
Description:	CUCM routing to client	
Network routing client:		
Network transfer preferred:	<input checked="" type="checkbox"/>	

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- Step 1** On the Default Route tab ensure that **Cisco\_Voice** is selected. See [Figure B-33](#).

**Figure B-33**



After the creation of the CUCM peripheral the second CVP VRU peripheral can now be added as follows:

- Step 1** Select the **Generic\_PG\_1** PG that was added from the PG explorer results on the left.
- Step 2** Click **Add Peripheral**.
- Step 3** Enter an appropriate name and peripheral name such as **CVP\_VRU\_PIM\_2**.
- Step 4** Select the Client Type as **VRU**.
- Step 5** Select the Default Desk Settings option to **NONE**.
- Step 6** Enter a proper description.
- Step 7** Check the **Enable post routing** option.
- Step 8** Click **Save**.

After clicking **Save**, the peripheral ID will be automatically generated; note it for later use when installing the peripheral gateways in ICMSetup. See [Figure B-34](#).

Figure B-34

Skill Group Mask	Routing client	Default route	Peripheral Monitor
Peripheral	Advanced	Agent Distribution	
Peripheral ID:	★ 5001		
Name:	★ CVP_VRU_PIM_2		
Peripheral name:	★ CVP_VRU_PIM_2		
Client type	★ VRU		
Location:			
Abandoned call wait time:	★ 0		
Configuration parameters:			
Call control variable map:			
Default desk settings:	NONE		
Peripheral service level type:	★ Calculated by Call Center		
Description:	VRU for CVP Call routing		
Enable post routing:	<input checked="" type="checkbox"/> Peripheral auto configured: <input type="checkbox"/>		

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Select the Routing Client tab and enter the following information for the peripheral:

- 
- Step 1** Enter an appropriate name and Peripheral name such as **CVP\_VRU\_PIM**.
  - Step 2** Select the Client Type as **VRU**.
  - Step 3** Select the Default media routing domain option to **Cisco\_Voice**.
  - Step 4** Enter a proper description.
  - Step 5** Click **Save**. See [Figure B-35](#).

Figure B-35

Peripheral	Advanced	Agent Distribution
Skill Group Mask	Routing client	Default route
	Peripheral Monitor	
Name:	★ CVP_VRU_PIM	ID: ★ 5001
Timeout threshold:	★ 2000	
Late threshold:	★ 1000	
Timeout limit:	★ 10	
Default media routing domain:	Cisco_Voice	
Default call type:	NONE	
Configuration parameters:		
Dialed Number/Label map:	★ Do not use DN/Label map	
Client type:	★ VRU	
Description:		
Network routing client:		
Network transfer preferred:	<input checked="" type="checkbox"/>	

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Create the second peripheral gateway logical controller for the Expert Advisor as follows:

- 
- Step 1** Open the Configurations Manager on the AW.

- Step 2** Select the **PG Explorer** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.
- Step 4** Click **Add PG**.
- Step 5** Enter an appropriate name such as **EA\_PG\_2**.
- Step 6** Enter a proper description.
- Step 7** Set the Client Type to **Expert Advisor**.
- Step 8** Leave the IP address for the primary and secondary CTI Servers blank.
- Step 9** Click **Save**.

After clicking **Save**, the logical and physical controller IDs will be automatically generated; note them for later use when installing the peripheral gateways in ICMSetup later. See [Figure B-36](#).

**Figure B-36**

After the creation of the logical controller the underlying peripheral can now be added.

- 
- Step 1** Select the **EA\_PG\_2** PG that was just added from the PG explorer results on the left.
  - Step 2** Click **Add Peripheral**.
  - Step 3** Enter an appropriate peripheral name such as **EA\_PG\_2\_1**.
  - Step 4** Select the Client Type as **Expert Advisor**.
  - Step 5** Under Configuration Parameters enter **/ExtendedAgent**.
  - Step 6** Select the Default Desk Settings option to **NONE**.
  - Step 7** Enter a proper description.
  - Step 8** Check the **Enable post routing** option.
  - Step 9** Check the **Peripheral auto configured** option.
  - Step 10** Click **Save**.

After clicking **Save**, the peripheral ID will be automatically generated; note it for later use when installing the peripheral gateways in ICMSetup. See [Figure B-37](#).

Figure B-37

Skill Group Mask	Routing client	Default route	Peripheral Monitor
Peripheral	Advanced	Agent Distribution	
Peripheral ID:	★ 5003		
Name:	★ EA_PG_2_1		
Peripheral name:	★ EA_PG_2_1		
Client type	★ Expert Advisor		
Location:			
Abandoned call wait time:	★ 5		
Configuration parameters:	/ExtendedAgent		
Call control variable map:			
Default desk settings:	NONE		
Peripheral service level type:	★ Calculated by Call Center		
Description:			
Enable post routing:	<input checked="" type="checkbox"/> Peripheral auto configured: <input checked="" type="checkbox"/>		

Select the Routing Client tab and enter the following information for the peripheral:

- Step 1** Enter an appropriate peripheral name such as **EA\_PIM**.
- Step 2** Select the Client Type as **Expert Advisor**.
- Step 3** Select the Default media routing domain option to **NONE**.
- Step 4** Enter a proper description.
- Step 5** Click **Save**. See [Figure B-38](#).

Figure B-38

Peripheral	Advanced	Agent Distribution
Skill Group Mask	Routing client	Default route
Name:	★ EA_PIM	ID: ★ 5003
Timeout threshold:	★ 5000	
Late threshold:	★ 2500	
Timeout limit:	★ 20	
Default media routing domain:	NONE	
Default call type:	NONE	
Configuration parameters:		
Dialed Number/Label map:	★ Do not use DN/Label map	
Client type:	★ Expert Advisor	
Description:		
Network routing client:		
Network transfer preferred:	<input type="checkbox"/>	

- Step 6** On the Advanced tab, ensure that the **Agent auto-configuration** option is not checked.
- Once all of the peripheral gateways and peripheral interface managers have been created in the Admin Workstation Configuration Manager the can then be installed in the ICM servers.

## Peripheral Gateway Installation for CUCCE

Each contact center device (ACD, PBX, or IVR/VRU) communicates with ICM software through a Peripheral Gateway (PG). The PG reads status information from the device and passes it back to the ICM software. The PG runs one or more Peripheral Interface Manager (PIM) processes, which are the software components that communicate with proprietary ACD and IVR/VRU systems.

**Note**

A single PG can support ACD PIMs, VRU PIMs, and Media Routing PIMs, though the ACD PIMs must all be of the same kind and the VRUs must all be of the same kind.

Before you install a Peripheral Gateway (PG), the Windows operating system (for version specifics refer to the Cisco Intelligent Contact Management Software Release 7.5(1) Bill of Materials—including SNMP and (for Windows 2003) WMI—must be installed on the computer, you must have setup the Windows Active Directory services for ICM software, and you must have setup at least one ICM instance.

Further, before you can complete the installation of a Peripheral Gateway, you must create configuration records in the ICM database. To create these configuration records you must have installed the CallRouter, a Logger, and the Admin Workstation.

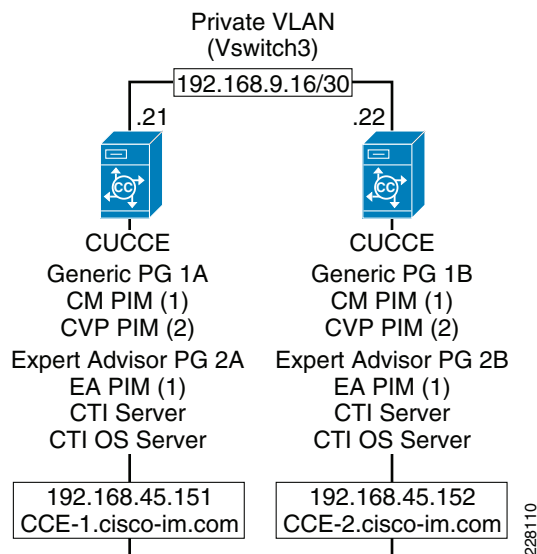
To configure a PG, you must know the visible network addresses for the CallRouter machines. If the PG is duplexed, you must know the visible and private network addresses of its duplexed peer.

For each PG, you must have defined a *Logical\_Interface\_Controller* record, a *Physical\_Interface\_Controller* record, and a Peripheral record for each PIM you intend to configure—though at least one Peripheral record is necessary. (Configure ICM creates these records automatically if you choose Configure a PG using the PG Explorer.)

**Note**

ICM software restricts running more than two PGs of the same instance on a single machine at the same time.

Figure B-39 shows the deployment of redundant servers with peripheral gateways.

**Figure B-39 Cisco Unified Contact Center Servers**

The following section outlines the steps to install two peripheral gateways with three peripheral interface managers for the solution. More information on peripheral gateway installations and configurations can be found in the *ICM Setup and Installation Guide*.

On the servers selected for the peripheral gateways start the ICMSetup.exe application. At least one ICM instance must be added before you can install any ICM components.

In the Cisco ICM Setup dialog box, in the **ICM Instances** section, click **Add**. The Add Instance dialog box opens. Complete the following steps:

- 
- Step 1** Select the network **Domain** for the instance.
  - Step 2** Select the **Facility** Organizational Unit for the instance.
  - Step 3** Select the **Instance Name** for the instance.



**Note** The ICM Instance Name is the name of the Instance Organizational Unit.

- Step 4** Use the **Instance Number** generated by the ICM software. (For standard single-instance ICM configurations, the instance number is 0.)

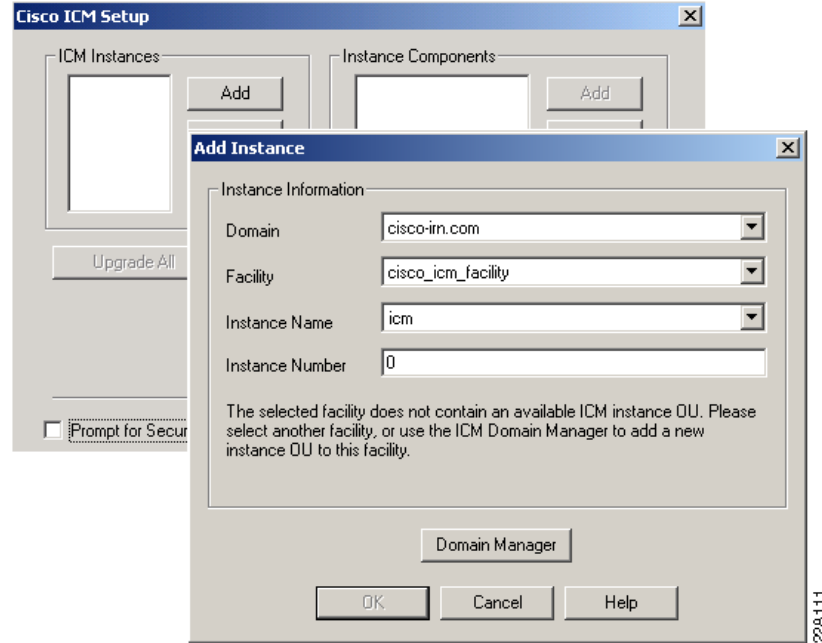


**Note** The mappings of instance names to instance numbers must be the same on every node in the system.

- Step 5** Click **OK**.



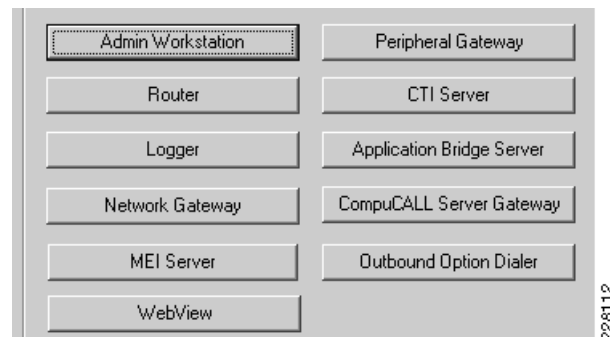
Figure B-40



You can now add ICM Instance components.

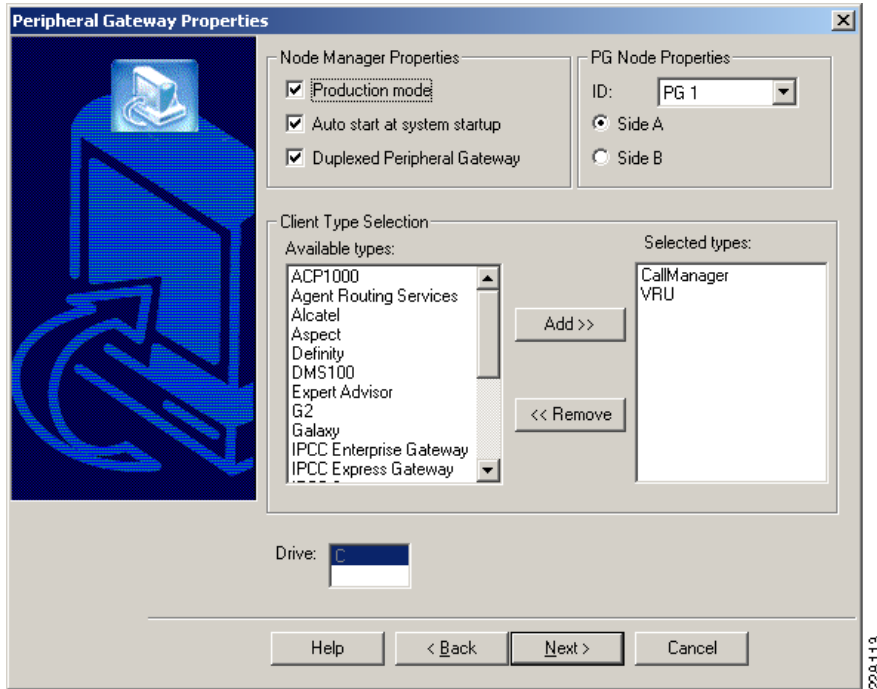
- Step 1** In the ICM Setup application, click the **Add** button on the right under **Instance Components**. See [Figure B-41](#).

Figure B-41



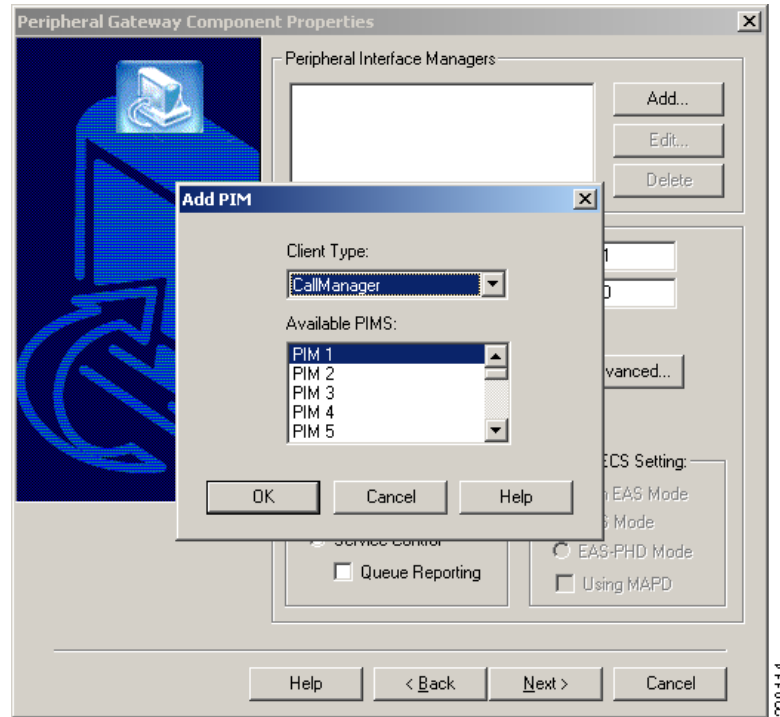
- Step 2** A new dialogue window will appear where you will be able to select the Peripheral Gateway component. In the Peripheral Gateway properties window configure the following:
- Check the **Production** node.
  - Check the **Auto start at system startup**.
  - Check the **duplexed Peripheral Gateway**.
  - Set the PG Node Properties ID to **PG 1** and select the appropriate side for duplexed installations.
  - Select the following client types and click the **Add** button:
    - CallManager

- VRU
- f. Click **Next**. See [Figure B-42](#).

**Figure B-42**

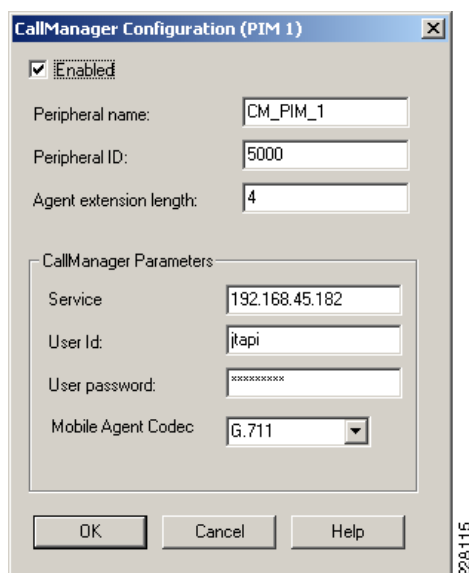
- Step 3** For the Peripheral Gateway Component Properties click **Add** in the Peripheral Interface Managers section. Set the Client type as **CallManager** and select **PIM 1** from the Available PIMS List. Click **OK**. See [Figure B-43](#).

Figure B-43



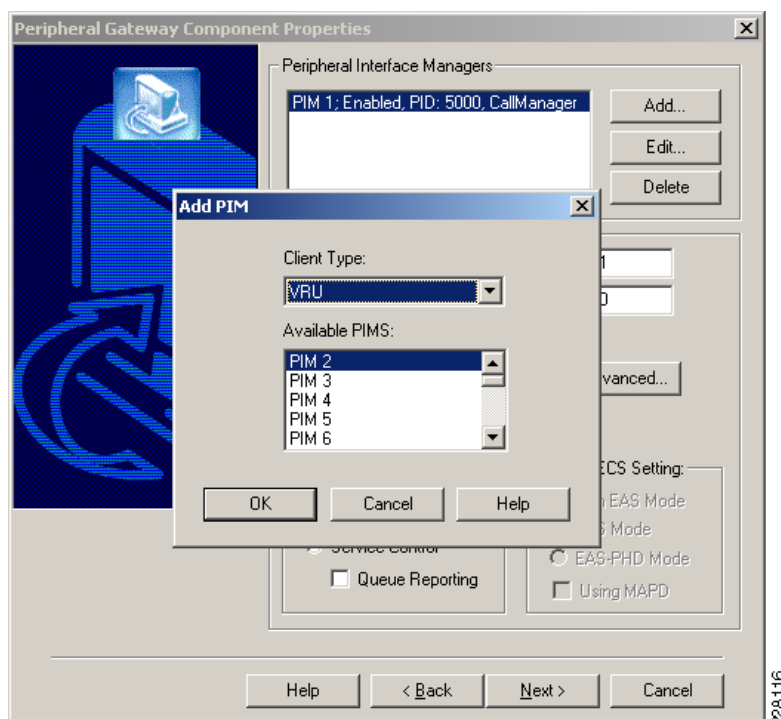
- Step 4** In the PIM Configuration dialogue, configure the PIM as follows:
- Select **Enable**.
  - Enter an appropriate Peripheral name.
  - Enter the Peripheral ID that was assigned by the Configuration Manager on the Admin Workstation.
  - Specify the appropriate agent Extension length for DN's on the Cisco Unified Communication Manager (this is critical as additional digits are added for call handling to CVP and call handoff will fail when mismatched).
  - In the CallManager Service Parameter enter the IP address of the call manager cluster publisher.
  - Enter the CCE username and password created in the Call Manager (i.e., jtapi user).
  - Click **OK**. See [Figure B-44](#).

Figure B-44



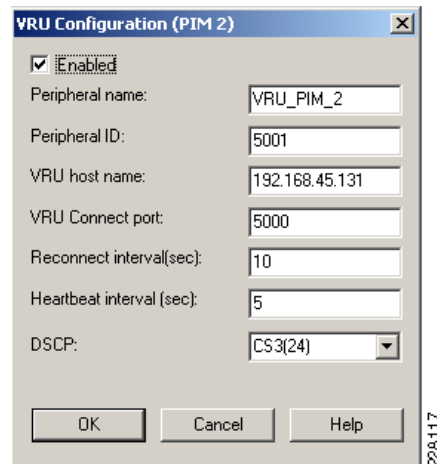
- Step 5** Back on the Peripheral Gateway Component Properties click **Add** in the Peripheral Interface Managers section again. Set the Client type as **VRU** and select **PIM 2** from the Available PIMS List. Click **OK**. See Figure B-45.

Figure B-45

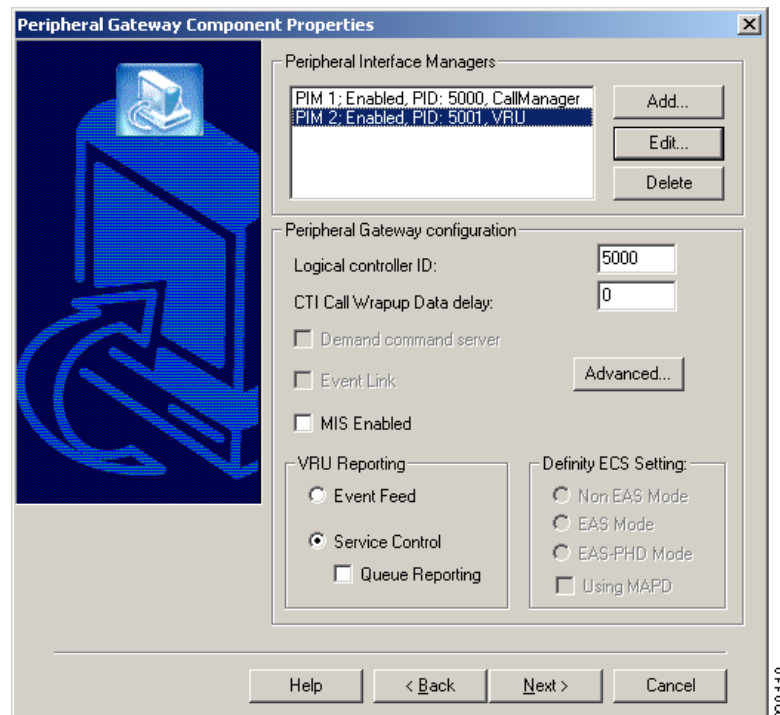


- Step 6** In the PIM Configuration dialogue, configure the PIM as follows:
- Select **Enable**.
  - Enter an appropriate Peripheral name.

- c. Enter the Peripheral ID that was assigned by the Configuration Manager on the Admin Workstation.
- d. In the VRU Hostname enter the IP address of the CVP Server.
- e. Enter VRU connection port.
- f. Click **OK**. See [Figure B-46](#).

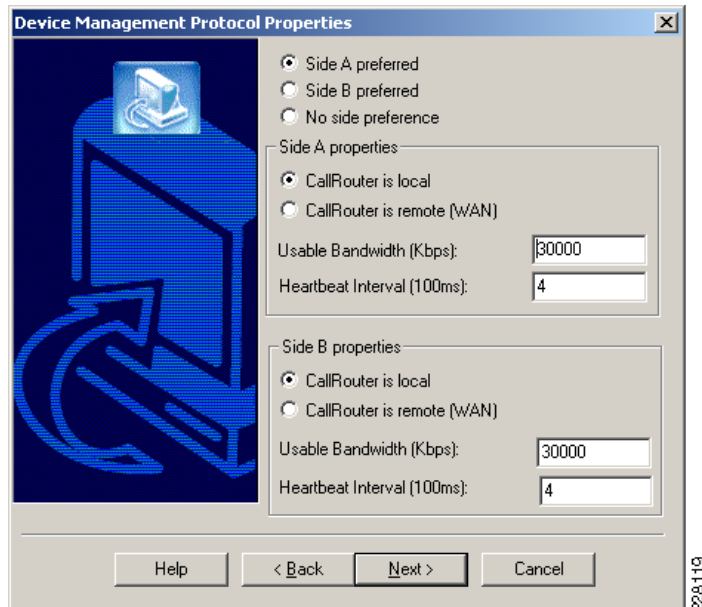
**Figure B-46**

- Step 7** Back on the Peripheral Gateway Component Properties enter the Peripheral Gateway Logical controller ID that was generated by the Configuration Manager on the Admin Workstation and click **Next**. See [Figure B-47](#).

**Figure B-47**

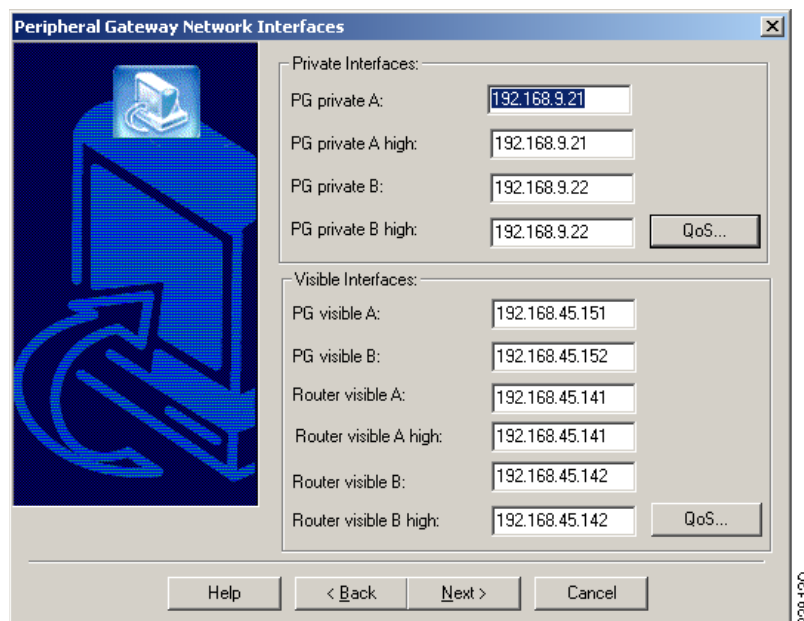
- Step 8** On the Device Management Protocol Properties set **Side A preferred** option and click **Next**. See [Figure B-48](#).

**Figure B-48**



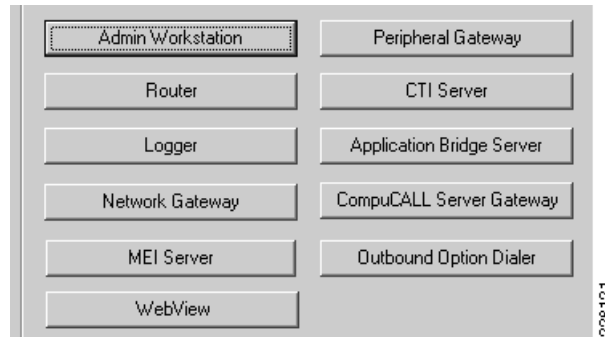
- Step 9** Enter the name or IP addresses for the Visible and Private Interfaces of the PG and Router. Optionally, enable QoS for these interfaces as desired. Click **Next**. See [Figure B-49](#).

**Figure B-49**



- Step 10** Review the PG setup information and click **Next** to complete installation of the first PG. The ICM interface will return to the ICM Setup application, click the **Add** button on the right under “Instance Components” to add the second peripheral gateway. See [Figure B-50](#).

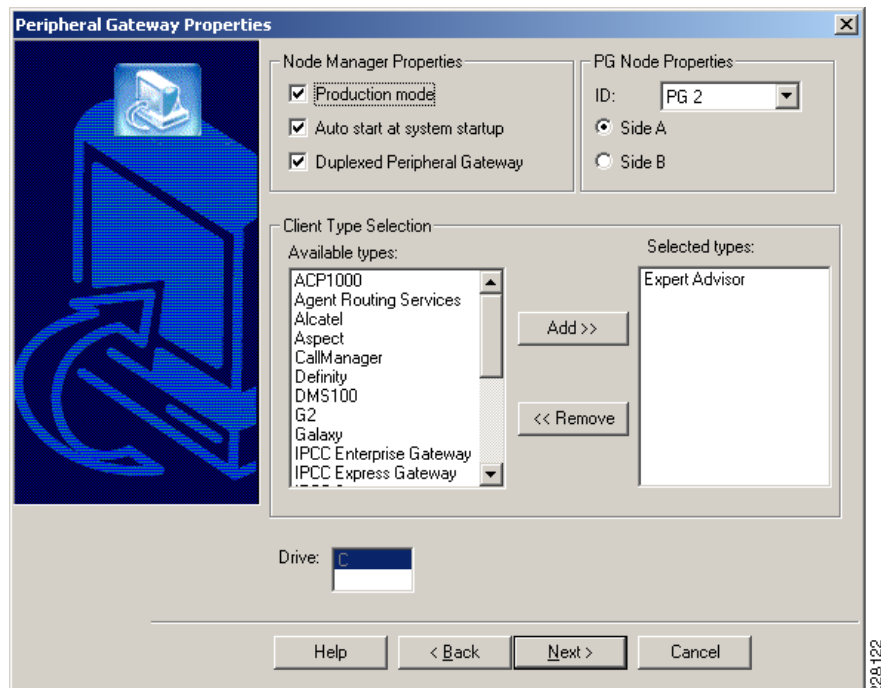
Figure B-50



**Step 11** A new dialogue window will appear where you will be able to select the Peripheral Gateway component. In the Peripheral Gateway properties window configure the following:

- a. Check the **Production** node.
- b. Check the **Auto start at system startup**.
- c. Check the duplexed Peripheral Gateway.
- d. Set the PG Node Properties ID to **PG 2** and select the appropriate side for duplexed installations.
- e. Select the **Expert Advisor** client type from the list of available types and click the **Add** button.
- f. Click **Next**. See [Figure B-51](#).

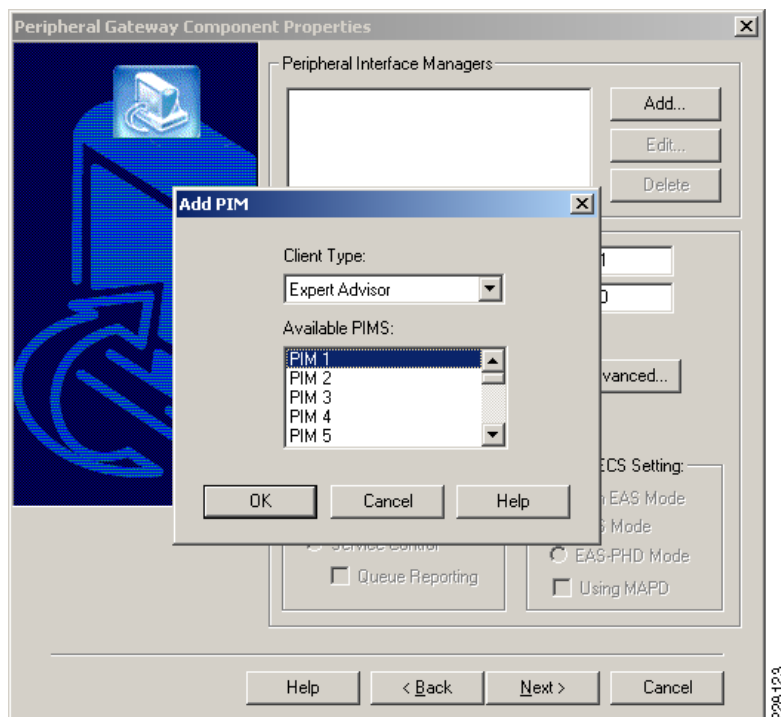
Figure B-51



**Step 12** For the Peripheral Gateway Component Properties click **Add** in the Peripheral Interface Managers section. Set the Client type as **Expert Advisor** and select **PIM 1** from the Available PIMS List. Click **OK**. See [Figure B-52](#).

**Note**

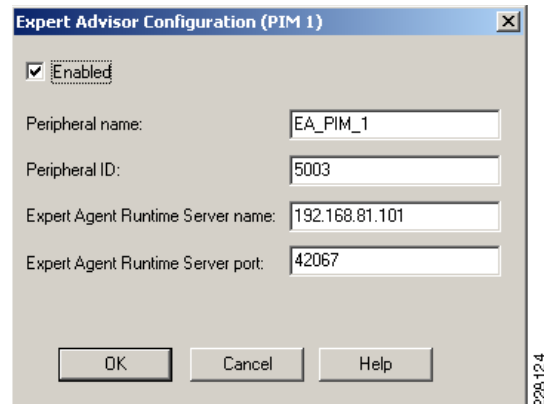
The number of PIMs is only significant within the respective PG. If you have only a few PGs deployed with few PIMs, it is acceptable to assign PIMs that match the PG numbering for ease of documenting.

**Figure B-52**

- Step 13** In the PIM Configuration dialogue, configure the PIM as follows:
- Select **Enable**.
  - Enter an appropriate Peripheral name.
  - Enter the Peripheral ID that was assigned by the Configuration Manager on the Admin Workstation.
  - Enter the IP address or name of the Expert Advisor Runtime Server.
  - Accept the default Expert Advisor server port or enter a different one as configured.
  - Click **OK**. See [Figure B-53](#).

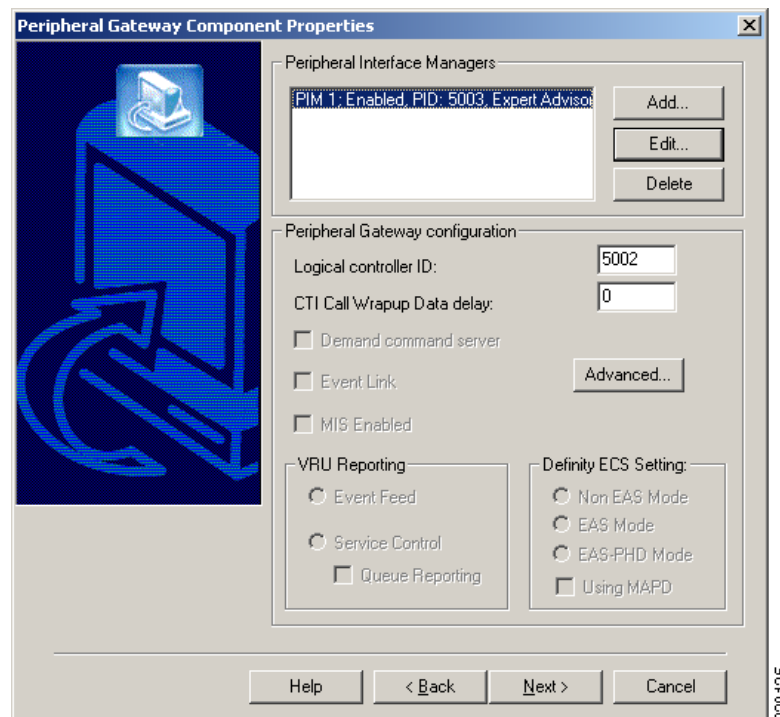


Figure B-53



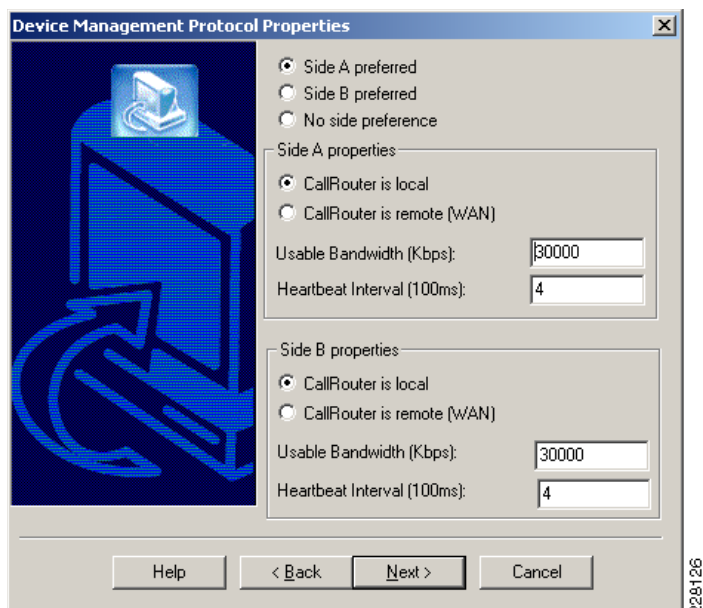
Back on the Peripheral Gateway Component Properties, enter the Peripheral Gateway Logical controller ID that was generated for the Expert Advisor PG by the Configuration Manager on the Admin Workstation and then click **Next**. See Figure B-54.

Figure B-54



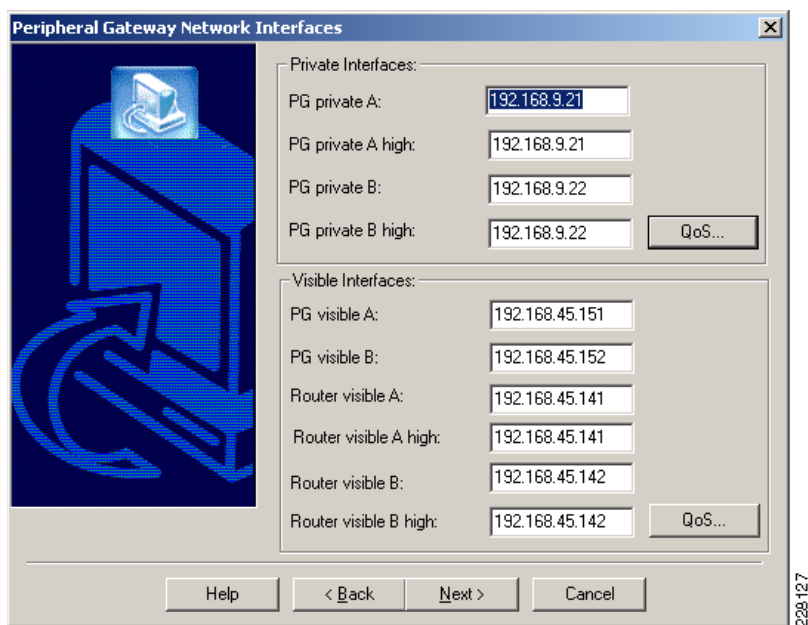
**Step 14** On the Device Management Protocol Properties set **Side A preferred** option and click **Next**. See Figure B-55.

Figure B-55



- Step 15** Enter the name or IP addresses for the Visible and Private Interfaces of the PG and Router. Optionally, enable QoS for these interfaces as desired. Click **Next**. See [Figure B-56](#).

Figure B-56



- Step 16** Review the PG setup information and click **Next** to complete installation of the PG.

## JTAPI Client Installation

It is mandatory to install the JTAPI client on the CUCM PG (which is PG1 in this setup) machine, so that it can talk to the CUCM via JTAPI interface. Once this has been completed, there will be a new process called JTAPIGW, which should be active even if no agents or phones are created in the CUCM.

Associate all of the agent's phone device's with this user in CUCM as well. To install the jtapi client, download the client from the CUCM administration interface and install it on the PG1 machine.

Within the Cisco Unified CM Administration interface select **Application** and then **Plugins**. Click the **Find** button to list all available plug-ins. Download and install the **Cisco JTAPI for Windows** plug-in. See [Figure B-57](#) and [Figure B-58](#).

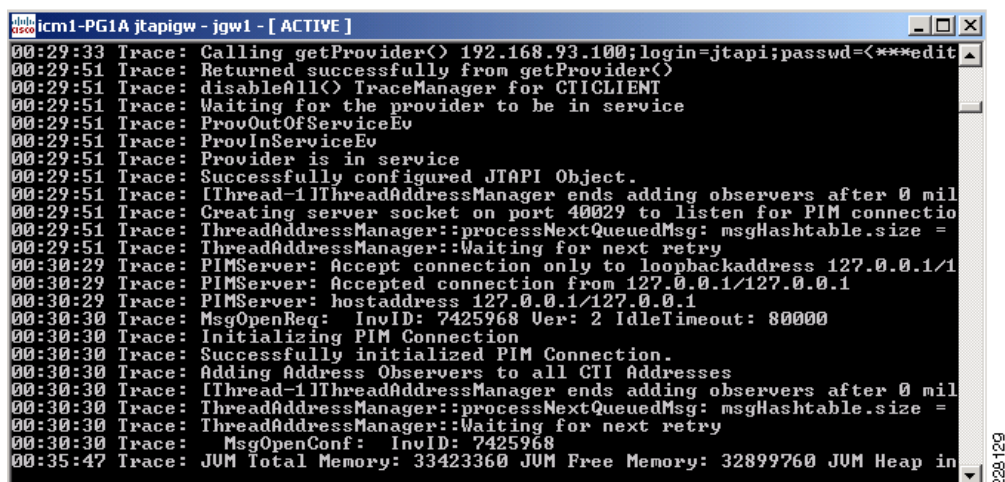
**Figure B-57**

The screenshot shows the Cisco Unified CM Administration interface. The top navigation bar includes 'Cisco Unified CM Administration' and 'Go'. Below the navigation bar, there are tabs for 'System', 'Call Routing', 'Media Resources', 'Voice Mail', 'Device', 'Application', 'User Management', 'Bulk Administration', and 'Help'. The 'Application' tab is selected, and the 'Find and List Plugins' page is displayed. The page shows a list of 12 records found. The 'Cisco JTAPI for Windows' plugin is highlighted with a red circle. The table lists the following plugins:

Plugin Name	Description
<a href="#">Cisco CTL Client</a>	This plugin retrieves the CTL file from the Cisco TFTP server. It digitally signs the CTL file by using a security token and then updates the file on the Cisco TFTP server.
<a href="#">Cisco CallManager AXL SQL Toolkit</a>	Cisco CallManager AXL SQL Toolkit, a zip file that contains a Java-based toolkit for sending and receiving SQL statements and results. Communicates with the AXL interface of the CallManager. Includes a sample SQL file and instructions for executing on a client system.
<a href="#">Cisco IP Phone Address Book Synchronizer</a>	Cisco IP Phone Address Book Synchronizer allows users to synchronize Microsoft Windows Address Book with Cisco Personal Address Book. The Synchronizer provides two-way synchronization between the Microsoft and Cisco products.
<a href="#">Cisco JTAPI for Linux</a>	Install this plugin on all computers that host applications that interact with Cisco CallManager via JTAPI. JTAPI provides the standard programming interface for telephony applications written in the Java programming language. JTAPI reference documentation and sample code are included. This plugin is meant for Linux platforms.
<a href="#">Cisco JTAPI for Solaris Sparc</a>	Install this plugin on all computers that host applications that interact with Cisco CallManager via JTAPI. JTAPI provides the standard programming interface for telephony applications written in the Java programming language. JTAPI reference documentation and sample code are included. This plugin is meant for Solaris Sparc platforms.
<a href="#">Cisco JTAPI for Solaris X86</a>	Install this plugin on all computers that host applications that interact with Cisco CallManager via JTAPI. JTAPI provides the standard programming interface for telephony applications written in the Java programming language. JTAPI reference documentation and sample code are included. This plugin is meant for Solaris X86 platforms.
<a href="#">Cisco JTAPI for Windows</a>	Install this plugin on all computers that host applications that interact with Cisco CallManager via JTAPI. JTAPI provides the standard programming interface for telephony applications written in the Java programming language. JTAPI reference documentation and sample code are included. This plugin is meant for Windows platforms.
<a href="#">Cisco TAPS for Windows</a>	Cisco Tool for Auto-Registered Phone Support (TAPS) loads a preconfigured phone setting on a phone. Install this component on a machine with a version of CRS that is compatible with the Cisco Unified CallManager version.
<a href="#">Cisco Telephony Service Provider</a>	This product contains the Cisco TAPI service provider (TSP) and the Cisco Wave Drivers. Install the application on the Cisco CallManager server or on any other computer that is running a Microsoft Windows operating system that interacts with the Cisco CallManager server via TCP/IP. TAPI, a standard programming interface for telephony applications, runs on the Microsoft Windows operating system. The Cisco TAPI Developer's Guide describes the TAPI interfaces that are currently supported. Install the Cisco TSP and the Cisco Wave Drivers to allow TAPI applications to make and receive calls on the Cisco IP Telephony Solution.
<a href="#">Cisco Unified CM</a>	Cisco Unified CallManager Serviceability Real-Time Monitoring Tool, a client tool, monitors real-time behavior of the components

The bottom of the page shows a status bar with 'Done', 'Trusted sites | Protected Mode: Off', and a progress indicator at 95%.

Figure B-58



```

icm1-PG1A jtapigw - jgw1 - [ ACTIVE ]
00:29:33 Trace: Calling getProvider() 192.168.93.100;login=jtapi;passwd=<***edit
00:29:51 Trace: Returned successfully from getProvider()
00:29:51 Trace: disableAll() TraceManager for CTICLIENT
00:29:51 Trace: Waiting for the provider to be in service
00:29:51 Trace: ProvOutOfServiceEv
00:29:51 Trace: ProvInServiceEv
00:29:51 Trace: Provider is in service
00:29:51 Trace: Successfully configured JTAPlugw Object.
00:29:51 Trace: [Thread-1]ThreadAddressManager ends adding observers after 0 mil
00:29:51 Trace: Creating server socket on port 40029 to listen for PIM connectio
00:29:51 Trace: ThreadAddressManager::processNextQueuedMsg: msgHashtable.size =
00:29:51 Trace: ThreadAddressManager::Waiting for next retry
00:30:29 Trace: PIMServer: Accept connection only to loopbackaddress 127.0.0.1/1
00:30:29 Trace: PIMServer: Accepted connection from 127.0.0.1/127.0.0.1
00:30:29 Trace: PIMServer: hostaddress 127.0.0.1/127.0.0.1
00:30:30 Trace: MsgOpenReq: Invid: 7425968 Ver: 2 IdleTimeout: 80000
00:30:30 Trace: Initializing PIM Connection
00:30:30 Trace: Successfully initialized PIM Connection.
00:30:30 Trace: Adding Address Observers to all CTI Addresses
00:30:30 Trace: [Thread-1]ThreadAddressManager ends adding observers after 0 mil
00:30:30 Trace: ThreadAddressManager::processNextQueuedMsg: msgHashtable.size =
00:30:30 Trace: ThreadAddressManager::Waiting for next retry
00:30:30 Trace: MsgOpenConf: Invid: 7425968
00:35:47 Trace: JUM Total Memory: 33423360 JUM Free Memory: 32899760 JUM Heap in
  
```

After completion of the JTAPlugw, install the CTI Server.

## CTI Server Installation

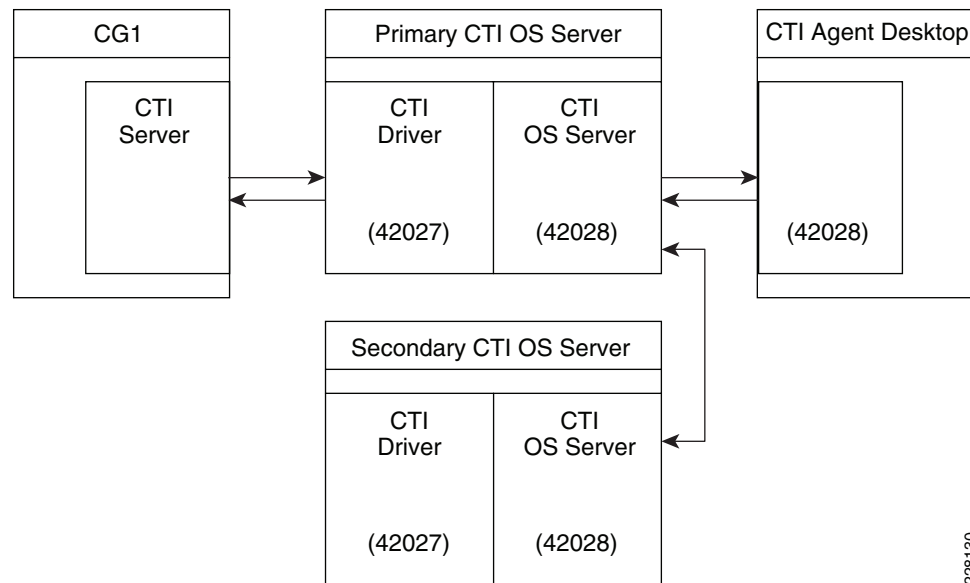
The CTI Server is an optional ICM node that allows a desktop or server application to receive call control information from the ICM and from call center peripherals. This information can be used, for example, in a screen pop on the agent's desktop. The CTI Gateway is available as part of the Cisco Enterprise CTI product.



**Note** Cisco supports installation of CTI Server on the same machine where the Peripheral Gateway software is installed. Installing CTI Server on a machine separate from the PG may cause network problems including, but not limited to, network disconnects, agents missing calls, and agents forced into *Not\_Ready*.

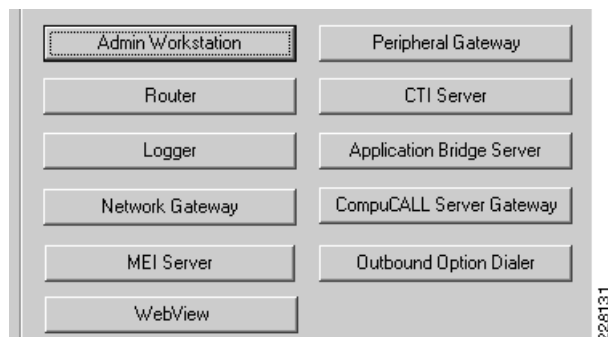
Before installing CTI Server, you must have installed/set up all the other components of ICM as described in the preceding sections.

CTI Server (*ctisvr*) is also called CG (short for CTI Gateway) which connects to the CTI OS Server using the *ctidriver* service running on the CTI OS Server machine. Logically, it can be viewed as shown in [Figure B-59](#).

**Figure B-59 CTI Communication**

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In the ICM Setup application, click the **Add** button on the right under **Instance Components**. See [Figure B-60](#).

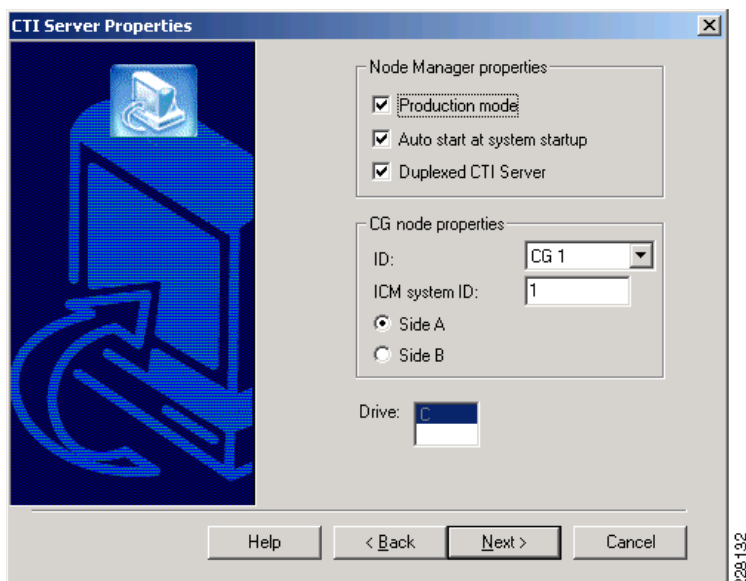
**Figure B-60**

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A new dialogue window will appear where you will be able to select the CTI Server component. In the CTI Server properties window configure the following:

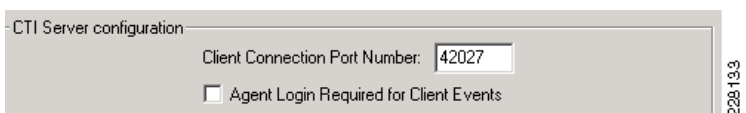
- 
- Step 1** Check the **Production node**.
  - Step 2** Check the **Auto start at system startup**.
  - Step 3** Check the **duplexed** Peripheral Gateway.
  - Step 4** Set the CG Node Properties ID to **CG 1** and select the appropriate side for duplexed installations.
  - Step 5** Click **Next**. See [Figure B-61](#).

Figure B-61



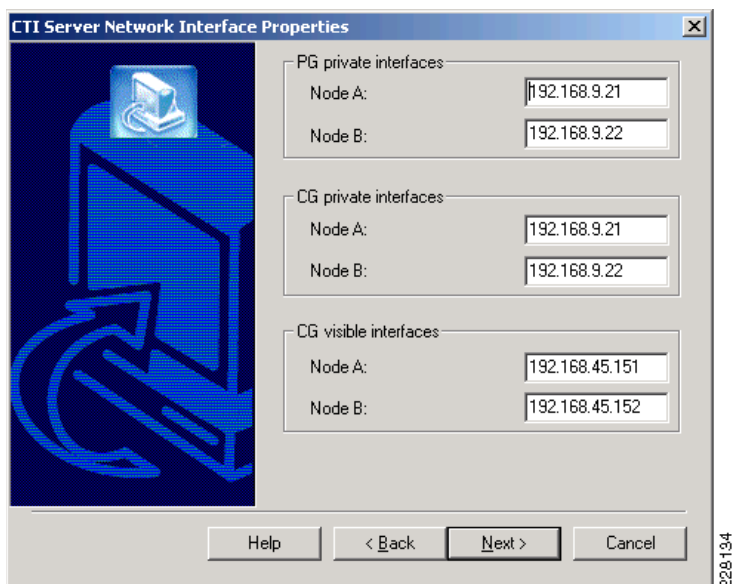
- Step 6** CTI Server as a default connects to the CTIOS Server on port 42027, but can be configured to use a different port. Click **Next**. See [Figure B-62](#).

Figure B-62



- Step 7** Configure the PG and CG Public and Private interfaces. Click **Next**. See [Figure B-63](#).

Figure B-63



**Step 8** Review the CG setup information and click **Next** to complete installation of the CTI Gateway.

## CTIOS Server Installation

The Computer Telephony Integration Object Server (CTI OS) is Cisco's next generation customer contact integration platform. CTI OS combines a powerful, feature-rich server and an object-oriented software development toolkit to enable rapid development and deployment of complex CTI applications.

Refer to the *CTI OS System Manager's Guide for Cisco ICM/IPCC Enterprise & Hosted Editions* for a complete explanation of configuring peripherals and connection profiles in the CTI OS Server.

[http://www.cisco.com/en/US/partner/products/sw/custcosw/ps14/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/partner/products/sw/custcosw/ps14/prod_installation_guides_list.html)

From the Server directory on the CD, run **Setup.exe** (or if already installed **C:\icm\CTIOS\_bin\setup.exe**). Click **Yes** on the Software License Agreement screen. The CTI OS Instances dialog appears.

**Step 1** The CTIOS Instances dialog allows you to create CTI OS Instances and add CTI OS Servers to a configured instance of CTI OS. You will create only one CTI OS instance for each ICM instance.

**Step 2** Under the CTI OS Instance List, click **Add**.

**Step 3** Enter an instance name (e.g., "**ctios**").

**Step 4** Now click on **Add** inside the CTI OS Server List. The Add CTIOS Server dialog appears.

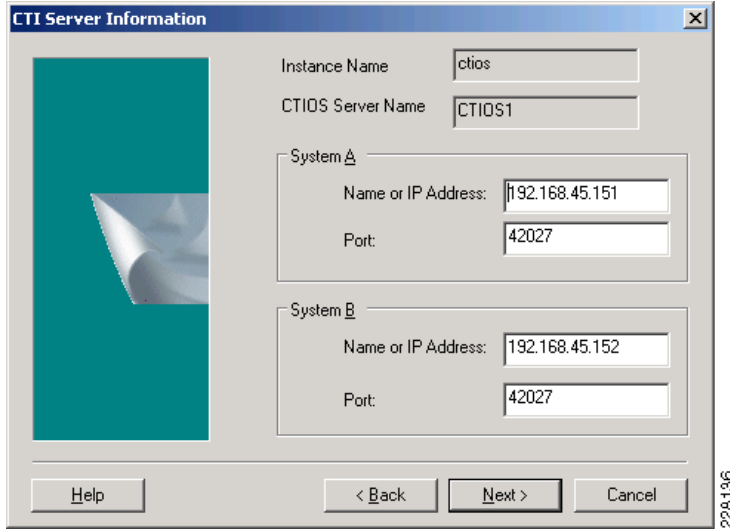
The CTIOS Server Name is filled in with the string "CTIOS" followed by the next available index for a CTI OS Server. If a CTI OS Server has been deleted, the CTIOS Server Name string is filled in with the index that was deleted.

If you are installing CTI OS Server for the first time, an Enter Desktop Drive screen appears. Accept the default installation drive or select another drive from the pull down list. See [Figure B-64](#) and [Figure B-65](#).

**Figure B-64**



Figure B-65

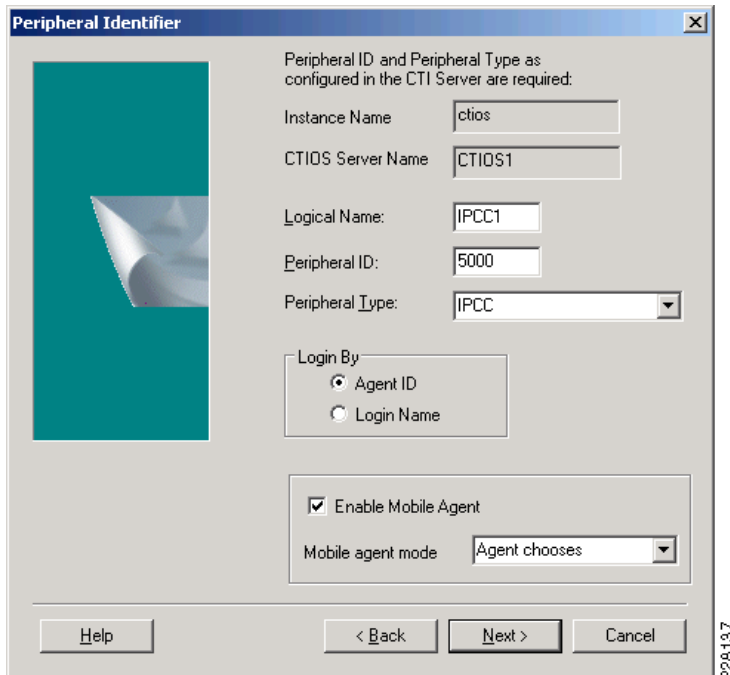


The CTI Server Information dialog box contains the following fields and controls:

- Instance Name:** ctios
- CTIOS Server Name:** CTIOS1
- System A:**
  - Name or IP Address:** 192.168.45.151
  - Port:** 42027
- System B:**
  - Name or IP Address:** 192.168.45.152
  - Port:** 42027
- Buttons:** Help, < Back, Next >, Cancel

- Step 5** The Peripheral ID here is the same ID that was assigned during the CUCM PG configuration in the Configuration Manager on AW. The agent desktop communicates with the CUCM IP Phone. See [Figure B-66](#).

Figure B-66



The Peripheral Identifier dialog box contains the following fields and controls:

- Peripheral ID and Peripheral Type as configured in the CTI Server are required:**
  - Instance Name:** ctios
  - CTIOS Server Name:** CTIOS1
  - Logical Name:** IPCC1
  - Peripheral ID:** 5000
  - Peripheral Type:** IPCC (dropdown menu)
- Login By:**
  - ☒ Agent ID
  - ☐ Login Name
- Enable Mobile Agent:** ☒
  - Mobile agent mode:** Agent chooses (dropdown menu)
- Buttons:** Help, < Back, Next >, Cancel

- Step 6** The listen port is where CTI Desktop Agent will connect. This port will also be used if a secondary CTIOS Server wants to talk to this one in an high availability environment or setting. See [Figure B-67](#).



Figure B-67

Enter the port number and heartbeat information for the CTIOS Server Instance

Instance Name:

CTIOS Server Name:

Listen Port:

Heartbeat Retry:

Heartbeat Interval:

Buttons: Help, < Back, Next >, Cancel

**Step 7** Enter the default polling interval for Skillgroup statistics (in seconds). Click **Next**. See [Figure B-68](#).

Figure B-68

Instance Name:

CTIOS Server Name:

☐ CAD Agent

☒ Polling for Agent Statistics at End Call

Polling Interval for Agent Statistics (seconds):

Polling Interval for Skillgroup Statistics (seconds):

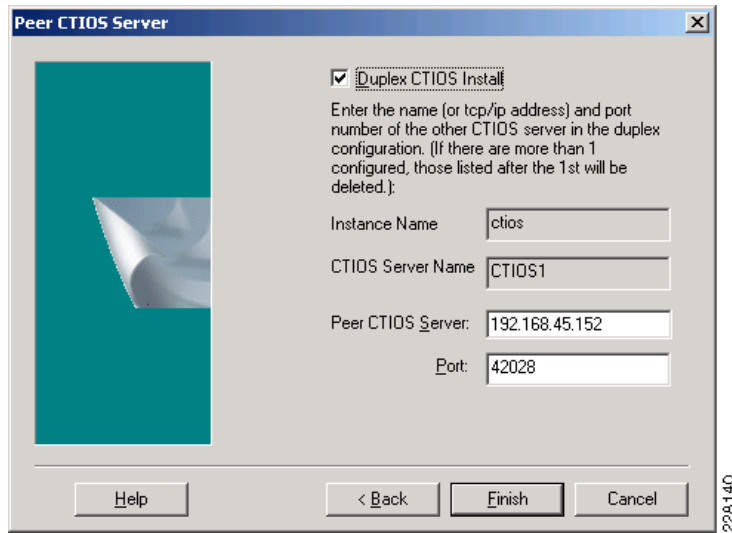
☐ Enable Quality of Service (QoS)

In order for CTIOS to have fully functional QoS, you must also enable QoS during installation of all clients connecting to this server.  
NOTE: Enabling QoS will DISABLE STATISTICS. For more information, see the System Manager's Guide.

Buttons: Help, < Back, Next >, Cancel

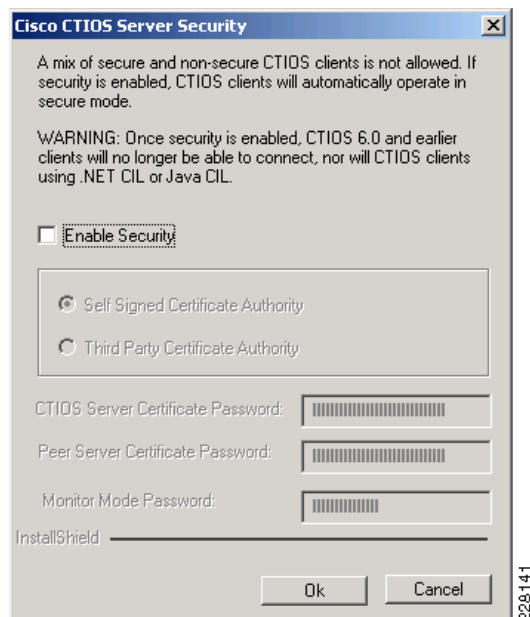
**Step 8** The Peer CTIOS Server dialog is used to configure a CTI OS Peer Server. It is also used for Chat and CTI OS Silent Monitoring. Enter the appropriate information. After you click **Finish**, and the files are laid down, the service is registered, and Registry entries are made. See [Figure B-69](#).

Figure B-69



**Step 9** The Security installation is launched with the dialog shown in [Figure B-70](#).

Figure B-70



**Step 10** If you wish to disable Security, just click **OK**; otherwise, check the checkbox and enter the appropriate information, and click **OK**. For more information about CTI OS Security, see Chapter 7, “CTI OS Security” in the *CTI OS System Manager's Guide for Cisco ICM/IPCC Enterprise & Hosted Editions Guide*.

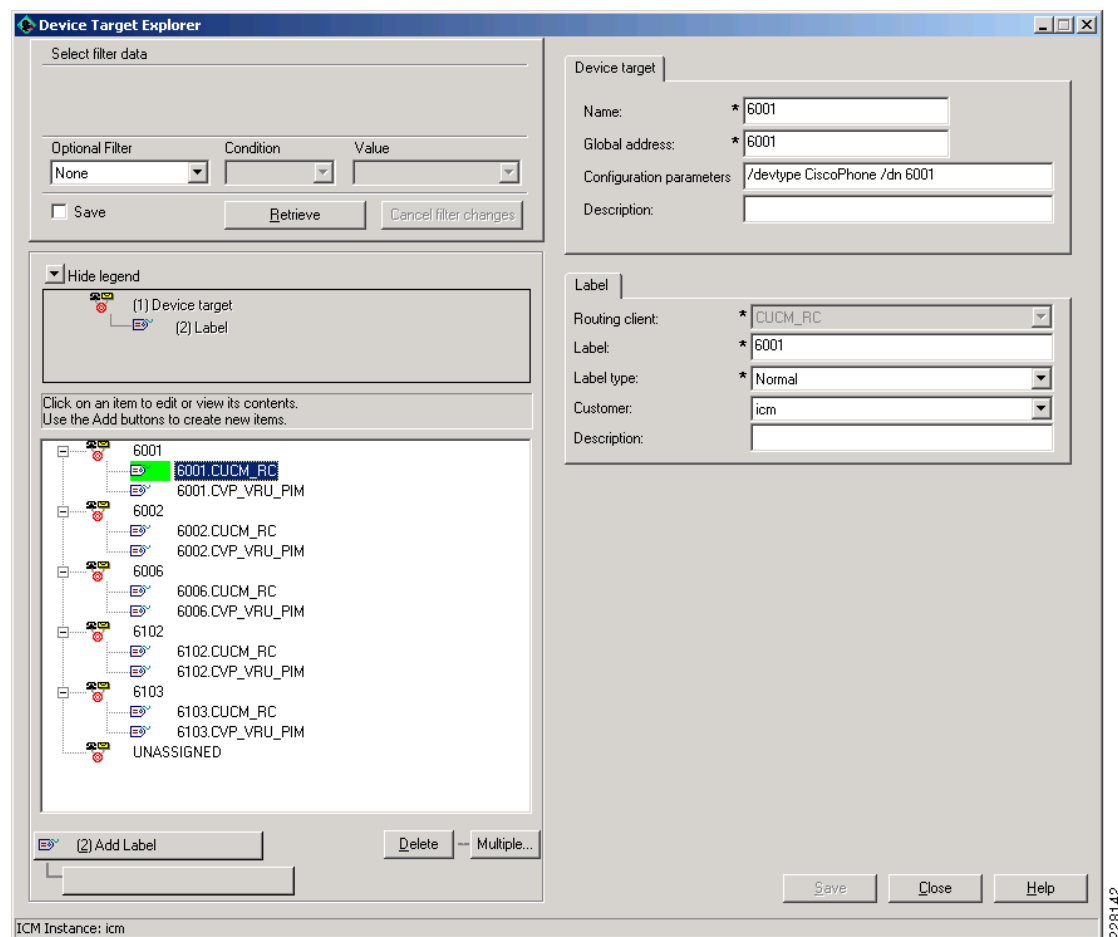
Upon the completion of the CTI OS Server the next step is to create device targets in Configuration Manager. Device targets are the extensions used by the formal Contact Center agents when the login into the Agent Desktop application. These next configuration steps are for formal contact center agents that would be used in addition to the Expert advisor agents. It is recommended to install a few formal agents for testing prior to the completed Expert Advisor implementation.

## Create Device Target in Configuration Manager

Create each of the Device Targets using the following steps:

- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **Device Target Explorer** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.
- Step 4** Click **Add Device Target**.
- Step 5** Enter an appropriate name such as the agent Extension “6001”.
- Step 6** Enter the Global Address, also the extension number for fully qualified number.
- Step 7** Enter the Configuration parameters as follows “/devtype CiscoPhone /dn 6001”.
- Step 8** Enter a description if desired.
- Step 9** Then Click **Save**. See [Figure B-71](#).

**Figure B-71**



- Step 10** Add label for each of the routing-clients. In this setup there are the following two routing clients:
  - CU Communication Manager

- CU CVP VRU

These two routing clients can request for labels from CUICM and CUICM will return the label to the routing-client. [Figure B-72](#) shows a label for CUCM Routing Client.

**Figure B-72**

The screenshot shows a configuration window with two tabs: "Device target" and "Label". The "Device target" tab is active, showing fields for Name, Global address, Configuration parameters, and Description. The "Label" tab is also visible, showing fields for Routing client, Label, Label type, Customer, and Description. The "Routing client" field is set to "CUCM\_RC".

Field	Value
Name:	6001
Global address:	6001
Configuration parameters:	/devtype CiscoPhone /dn 6001
Description:	
Routing client:	CUCM_RC
Label:	6001
Label type:	Normal
Customer:	icm
Description:	

[Figure B-73](#) shows a label defined for CVP Routing Client.

**Figure B-73**

The screenshot shows a configuration window with two tabs: "Device target" and "Label". The "Device target" tab is active, showing fields for Name, Global address, Configuration parameters, and Description. The "Label" tab is also visible, showing fields for Routing client, Label, Label type, Customer, and Description. The "Routing client" field is set to "CVP\_VRU\_PIM".

Field	Value
Name:	6001
Global address:	6001
Configuration parameters:	/devtype CiscoPhone /dn 6001
Description:	
Routing client:	CVP_VRU_PIM
Label:	6001
Label type:	Normal
Customer:	icm
Description:	

## Network VRU Configuration in AW Configuration Manager

Create the Network VRU device as follows:

- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **Network VRU Explorer** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.

- Step 4** Click **Add Network VRU**.
- Step 5** Enter an appropriate name such as “**cvp**”.
- Step 6** Select the type as “**Type 10**”.
- Step 7** Enter a description such as the extension numbers associated with CVP and the VXML Gateway.
- Step 8** Then Click **Save**. See [Figure B-74](#).

**Figure B-74**

The screenshot shows a web-based configuration interface for a Network VRU. The 'Network VRU' tab is selected. The form contains three main fields: 'Name' with the value 'cvp', 'Type' with a dropdown menu showing 'Type 10', and 'Description' with the text 'CCenter # 1005-6'. There are also tabs for 'Network VRU' and 'Network VRU Banks' at the top.

After the Network CVP VRU is created, add labels for each of the Route Clients as follows:

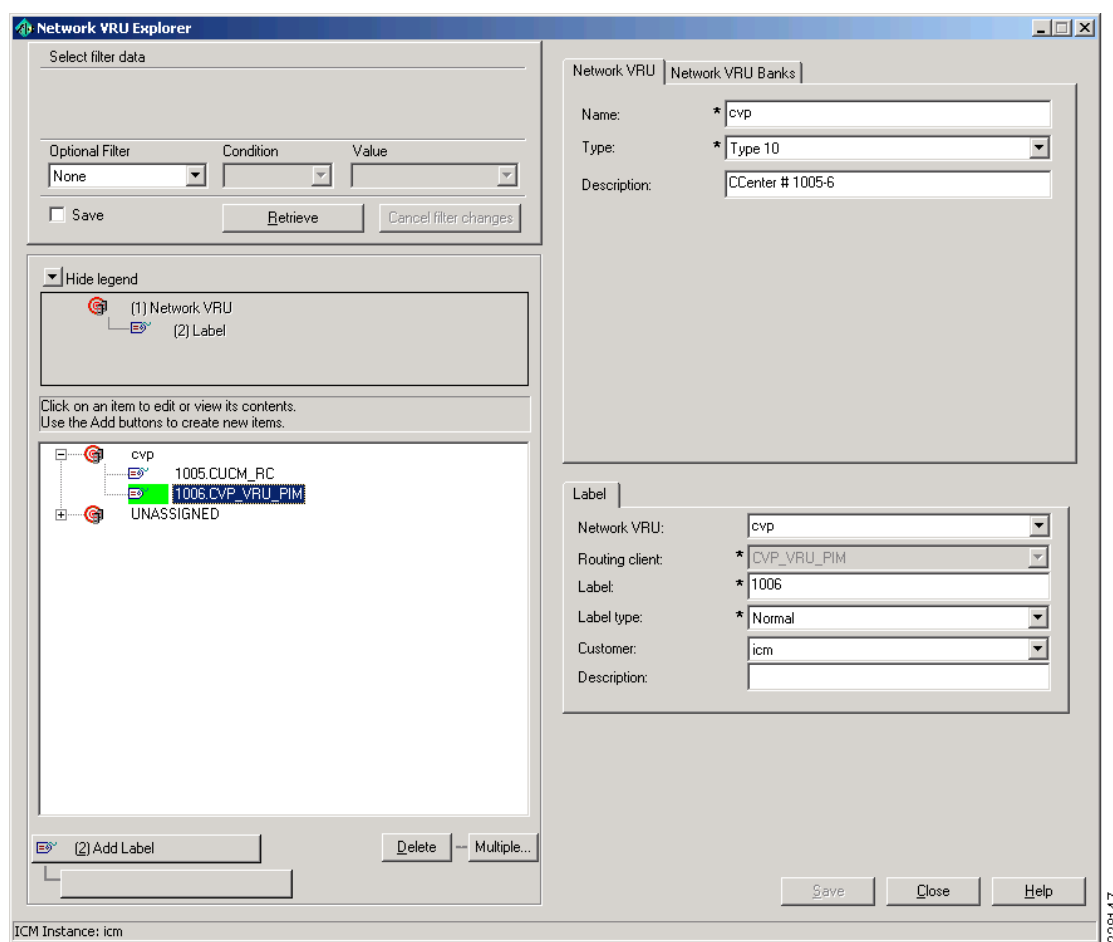
- 
- Step 1** Click **Add Label**.
  - Step 2** Select the Network VRU **cvp**.
  - Step 3** Select the Route Client **CUCM\_RC**.
  - Step 4** Enter the label of the CVP Extension line **1005**.
  - Step 5** Select **normal** for the label type.
  - Step 6** Select **icm** as the Customer.
  - Step 7** Enter a description as desired.
  - Step 8** Click **Save**. See [Figure B-75](#).

**Figure B-75**

The screenshot shows a web-based configuration interface for a Label. The 'Label' tab is selected. The form contains six fields: 'Network VRU' (cvp), 'Routing client' (CUCM\_RC), 'Label' (1005), 'Label type' (Normal), 'Customer' (icm), and 'Description' (empty). There is also a 'Label' tab at the top.

Perform the same steps and add a label for the CVP VRU PIM Route client as follows:

- Step 1** Click **Add Label**.
- Step 2** Select the Network VRU **cvp**.
- Step 3** Select the Route Client **CVP\_VRU\_PIM**.
- Step 4** Enter the label of the CVP Extension line **1006**.
- Step 5** Select **normal** for the label type.
- Step 6** Select **icm** as the Customer.
- Step 7** Enter a description as desired.
- Step 8** Click **Save**. See [Figure B-76](#).

**Figure B-76**

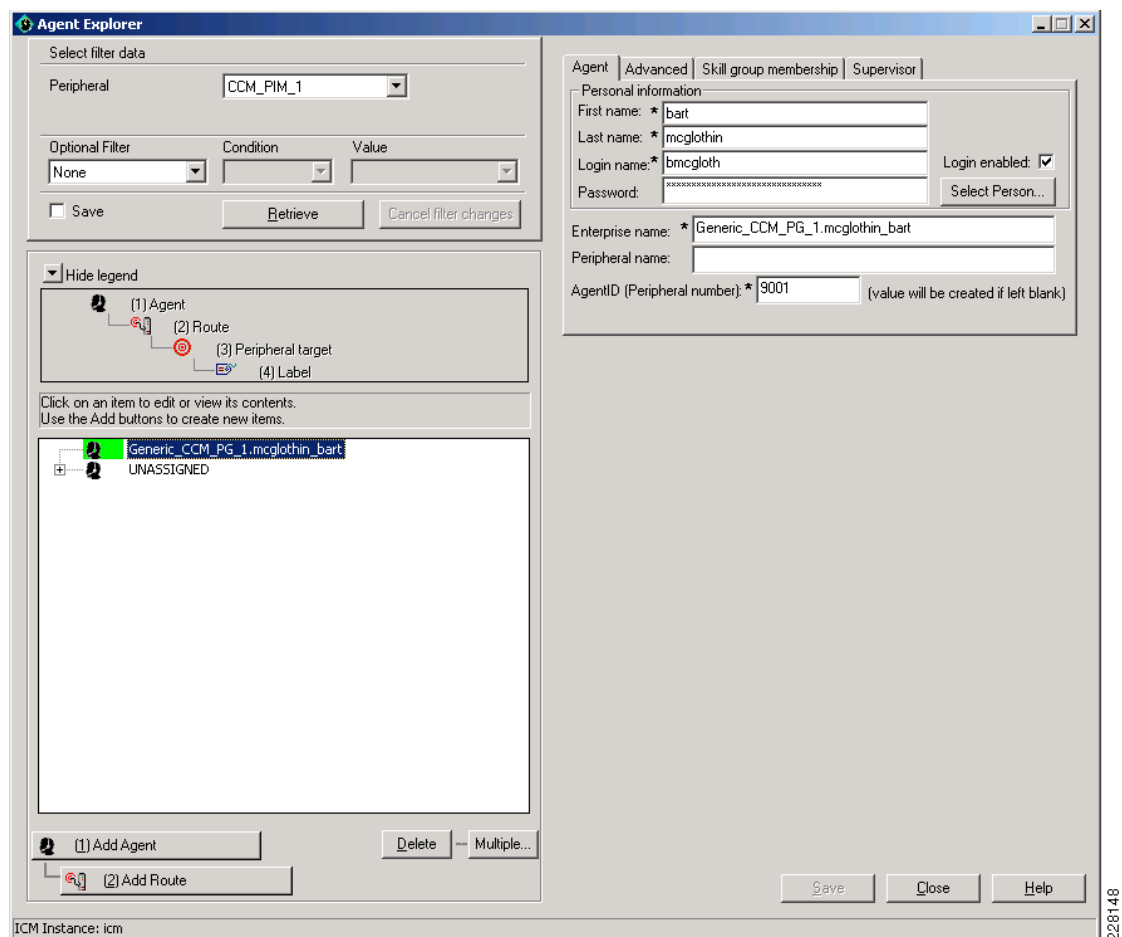
- Step 9** After the network VRUs have been created, add a Contact Center Agent and Skill Group for testing purposes.

## Add Agents

Create the Agent as follows:

- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **Agent Explorer** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.
- Step 4** Click **Add Agent**.
- Step 5** Enter an appropriate first, last, and login name.
- Step 6** Enter an appropriate password.
- Step 7** Verify the Enterprise name that was generated is appropriate.
- Step 8** Enter an AgentID number or allow one to be generated automatically. This number is used during agent login to the Agent desktop client.
- Step 9** On the Supervisor tab, check **Supervisor agent** if desired.
- Step 10** Click **Save**. See [Figure B-77](#).

**Figure B-77**



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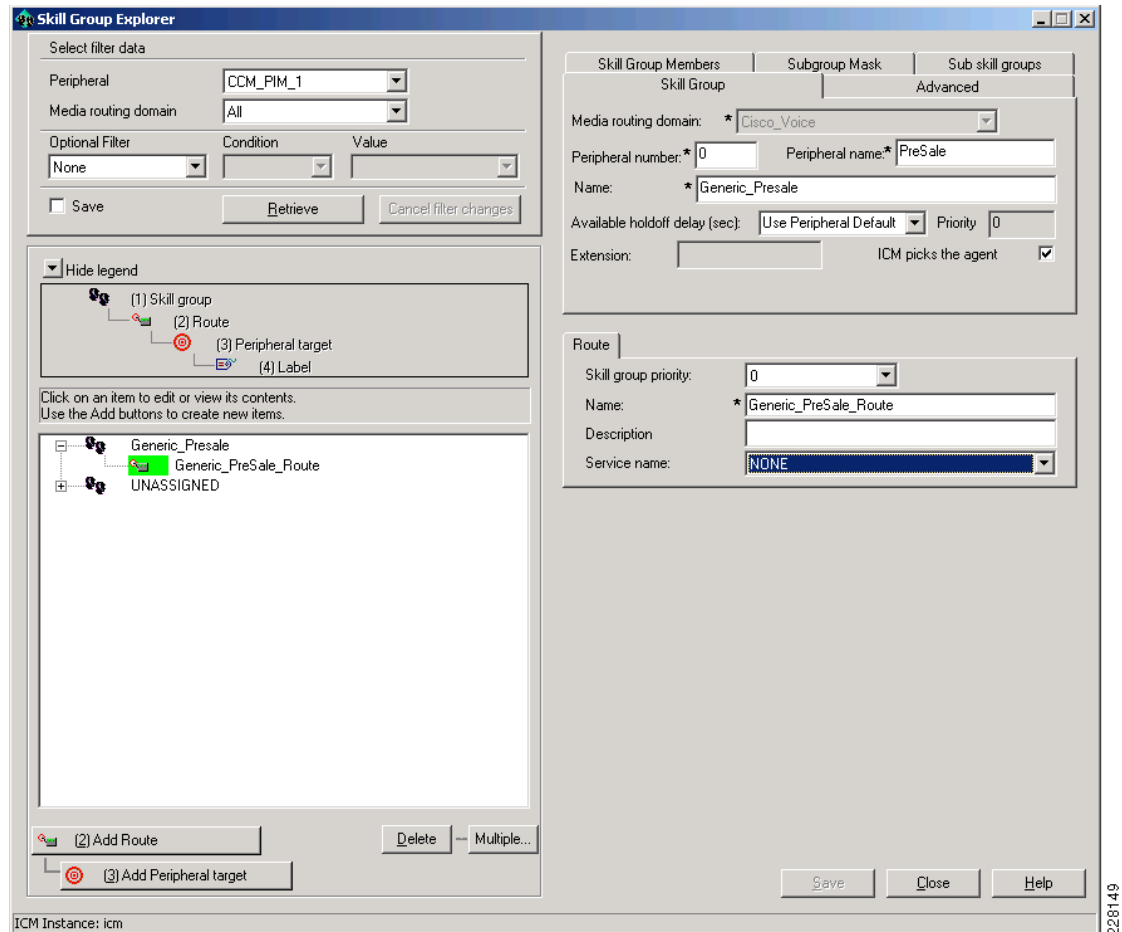
## Add Skill Group

Create a Skill Group as follows:

- 
- Step 1** Open the Configurations Manager on the AW.
  - Step 2** Select the **Skill Group Explorer** option under the **Tools > Explorer Tools** group.
  - Step 3** Click **Retrieve**.
  - Step 4** Click **Add Skill Group**.
  - Step 5** Enter a Peripheral name such as **PreSale**.
  - Step 6** Enter an appropriate Name such as **Generic\_Presale**.
  - Step 7** Select the Media Routing domain **Cisco\_Voice**.
  - Step 8** On the Skill Group Members tab click add and select the agent created earlier.
  - Step 9** Click **Save**.
  - Step 10** Add route option in the skill group.
  - Step 11** Click **Add Route**.
  - Step 12** Assign an appropriate name such as **Generic\_PreSale\_Route**.
  - Step 13** Click **Save**. See [Figure B-78](#).



Figure B-78



**Step 14** The next step is to create Call Type Lists for the Presales group and the Expert Advisor Service.

## Add Call Type List

Create a Call Type List as follows:

- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **Call Type List** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.
- Step 4** Click **Add**.
- Step 5** Enter a name such as **PreSales\_SanJose** or **Expert\_Advisor\_Service**.
- Step 6** Select the Customer **icm**.
- Step 7** Enter an appropriate description as desired.
- Step 8** Click **Save**. See [Figure B-79](#).
- Step 9** Repeat for second list.

Figure B-79

**Call Type List**

Select filter data

Customer: <All>

Optional Filter: None Condition: Value:

☐ Save Retrieve Cancel filter changes

**Call Type**

Name	Selected
Expert_Advisor_Service	<input checked="" type="checkbox"/>
PreSales_SanJose	<input checked="" type="checkbox"/>

Add Delete Revert

**Attributes**

Name: \*Expert\_Advisor\_Service

Call Type ID: \*5001

Customer: icm

**Service level**

Service level threshold: 20

Service level type: Ignore Abandoned Calls

Override System Information Default: ☐

**Bucket intervals**

Bucket intervals: Default\_Bucket\_Intervals

Override System Information Default: ☐

Description:

Save Close Help

ICM Instance: icm

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## Add Dialed Number/Script Selector List

Create a Dialed Number List as follows:

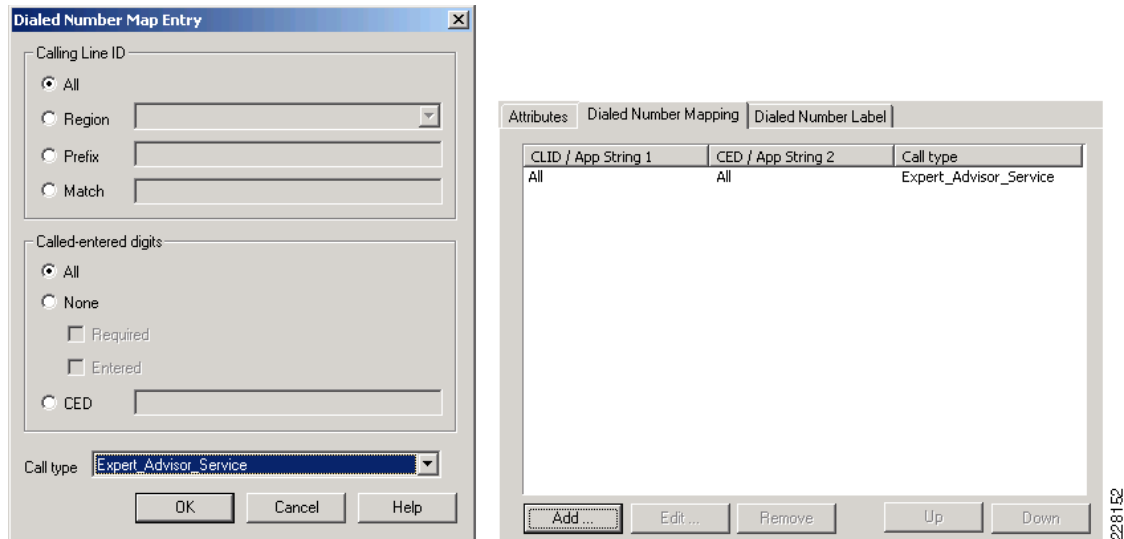
- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **Dialed Number/ Script Selector List** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.
- Step 4** Click **Add**.
- Step 5** Select the Routing client **CUCM\_RC**.
- Step 6** Select the Media routing Domain **Cisco\_Voice**.
- Step 7** Enter the Dialed Number string that is called to reach this queue.
- Step 8** Enter a name such as **CUCM\_RC.1000** or **CUCM\_RC.1301** as appropriate.
- Step 9** Select the Customer **icm**.
- Step 10** Leave the default Label as **<None>**.
- Step 11** Enter an appropriate description as desired.

- Step 12** Click **Save**. See [Figure B-80](#).
- Step 13** Repeat for additional dialed numbers.

**Figure B-80**

- Step 14** On the **Dialed Number Mapping** Tab, select the calling line ID, Caller Entered digits (if any) and the Call type. For the 1301 dialed number the **Expert\_Advisor\_Service** was selected, for the 1000 dialed number **PreSaled\_SanJose** was selected. See [Figure B-81](#).

Figure B-81

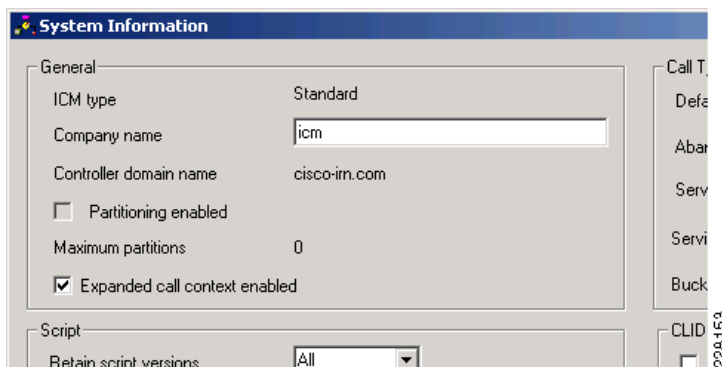


## Enable Expanded Call Context

To ensure proper call routing, ensure that **Expanded call context** is enabled in the System information configuration as follows:

- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **System Information** option under the **Configure ICM > Enterprise > System Information** group.
- Step 3** Check the **Expanded call context** option.
- Step 4** Click **Save**. See [Figure B-82](#).

Figure B-82



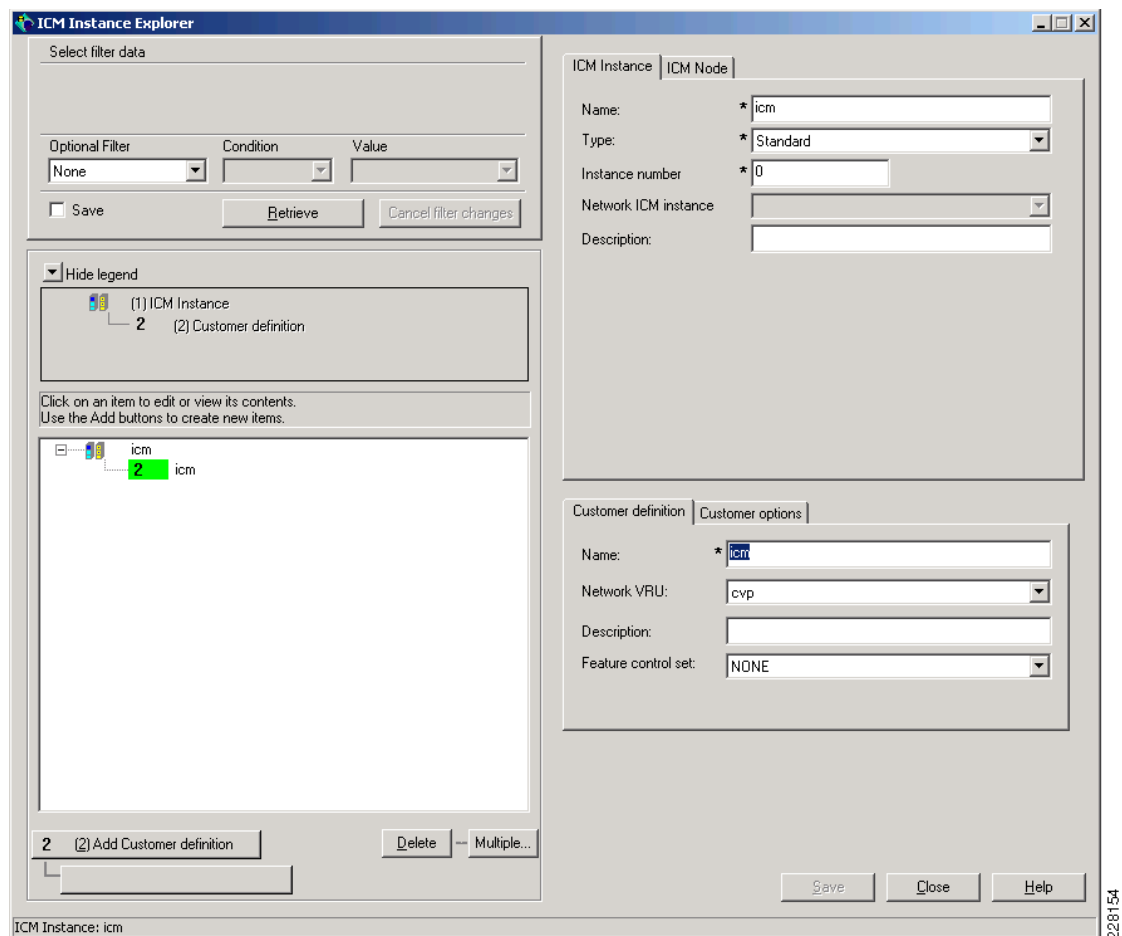
## CUICM Instance Explorer Setting

An additional customer definition must be created for CVP under the ICM instance.

Create a customer definition as follows:

- Step 1** Open the Configurations Manager on the AW.
- Step 2** Select the **ICM Instance Explorer** option under the **Tools > Explorer Tools** group.
- Step 3** Click **Retrieve**.
- Step 4** Select the desired instance.
- Step 5** Click **Add Customer definition**.
- Step 6** Enter an appropriate name.
- Step 7** Select the Network VRU as **cvp**.
- Step 8** Enter an appropriate description as desired.
- Step 9** Click **Save**. See [Figure B-83](#).

**Figure B-83**



## Add Expanded Call Variable List

Call variables are used to carry various pieces of information between systems as a call flows through the queue script steps. The default installation lacks several variables used in an Expert Advisor deployment and as such need to be added.

Add additional call variables as follows:

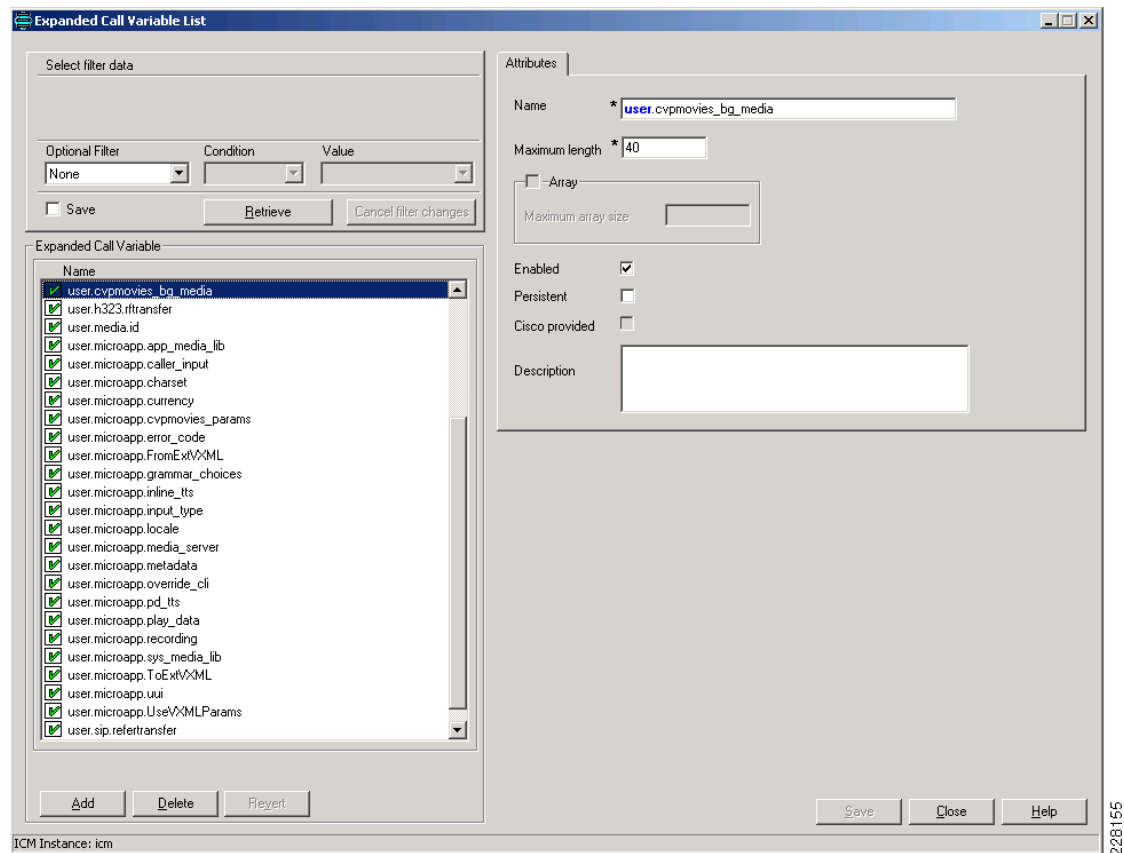
- 
- Step 1** Open the Configurations Manager on the AW.
  - Step 2** Select the **Expanded Call Variable List** option under the **Tools > Explorer Tools** group.
  - Step 3** Click **Retrieve**.
  - Step 4** Click **Add**.
  - Step 5** Using the table of information below, configure each variable.
  - Step 6** Enter the variable name.
  - Step 7** Set the variable maximum length.
  - Step 8** If an array size is defined, check the array option and set the size.
  - Step 9** Set the variable as enabled.
  - Step 10** Set as persistent if specified.
  - Step 11** Enter an appropriate description as desired.
  - Step 12** Click **Save**. See [Figure B-84](#).
  - Step 13** Repeat for each call variable.

**Table B-1**      *Expanded Call Variables*

Name	Max Length	Array size	Enabled	Persistent
user.cvpmovies_bg_media	40		yes	
user.h323.rftransfer	1		Yes	
user.media.id	36		Yes	
user.microapp.app_media_lib	10		Yes	
user.microapp.caller_input	210		Yes	
user.microapp.charset	10		Yes	Yes
user.microapp.currency	6		Yes	
user.microapp.cvpmovies_params	40		Yes	
user.microapp.error_code	2		Yes	
user.microapp.FromExtVXML	210	1	Yes	
user.microapp.grammar_choices	210		Yes	
user.microapp.inline_tts	210		Yes	
user.microapp.input_type	1		Yes	
user.microapp.locale	5		Yes	
user.microapp.media_server	30		Yes	
user.microapp.metadata	62		Yes	

**Table B-1** Expanded Call Variables (continued)

user.microapp.override_cli	1		Yes	
user.microapp.pd_tts	1		Yes	
user.microapp.play_data	40		Yes	
user.microapp.recording	40		Yes	
user.microapp.sys_media_lib	10		Yes	
user.microapp.ToExtVXML	210	1	Yes	
user.microapp.uui	131		Yes	
user.microapp.UseVXMLParams	1	1	Yes	
user.sip.refertransfer	1		Yes	
user.video_media_server	40		Yes	

**Figure B-84**

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## Network VRU Script List

The Network VRU enables interaction with the caller using a variety of external scripts. The scripts created in the Network VRU Script List are then made available in the Script Editor.

Create the following scripts for use later in the Script Editor.

Create the VRU Scripts as follows:

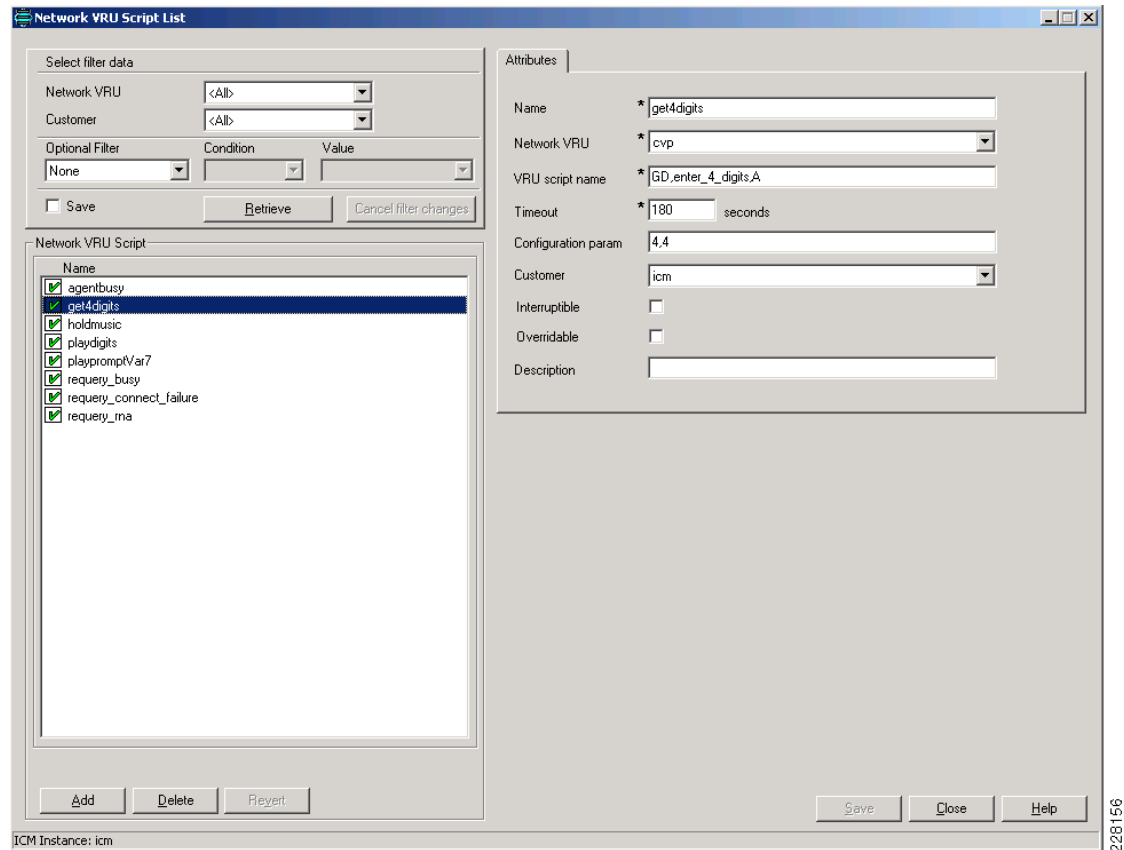
- 
- Step 1** Open the Configurations Manager on the AW.
  - Step 2** Select the **Network VRU Script List** option under the **Tools > Explorer Tools** group.
  - Step 3** Click **Retrieve**.
  - Step 4** Click **Add**.
  - Step 5** Using the table of information below, create each of the VRU Scripts.
  - Step 6** Enter the script name.
  - Step 7** Set the Network VRU as **cvp** for all entries.
  - Step 8** Enter the VRU script name.
  - Step 9** Enter the Timeout length.
  - Step 10** Enter the Configuration param.
  - Step 11** Set the Customer as **icm**.
  - Step 12** Enter an appropriate description as desired.
  - Step 13** Click **Save**. See [Figure B-85](#).
  - Step 14** Repeat for each Network VRU Script in the table.

**Table B-2**

Name	VRU Script name	Timeout	Config. Param	Int	Ovr
agentbusy	PM,agentsbusy	180			
get4digits	GD,enter_4_digits,A	180	4,4		
holdmusic	PM,holdmusic	600		y	Y
playdigits	PD,Char	180		y	
playpromptVar7	PM,-7	180		y	
requery_busy	PM,requery_busy	180			
requery_connect_failure	PM,requery_connect_failure	180			
requery_rna	PM,requery_rna	180			



Figure B-85



## CTI Toolkit Agent Desktop Client Installation

For Agents located in Contact Centers, or agents that would service more standard call center queues; the cisco Agent Desktop facilitates access to the queue and the tools necessary to track and monitor queue status.

The Cisco agent desktop is installed by running the Setup.exe program on the CTI disc (i.e., **D:\ctios\_builds\Release\ctios\Installs\CTIOSClient**).

After running **Setup.exe**, complete the following steps are complete:

- 
- Step 1** Click **Next**, to continue.
  - Step 2** Click **Yes** on the confirmation page.
  - Step 3** Select the Installation drive.
  - Step 4** Click **Next**.
  - Step 5** Select the **Agent Desktop** feature.
  - Step 6** Click **Next**.
  - Step 7** Enter the CTIOS Server information.
  - Step 8** Enable QoS as desired.

- Step 9** Click **Next**.
- Step 10** If the formal agents are also using video endpoints select **Enable** for CVP Video.
- Step 11** Click **Next**.
- Step 12** Verify installation items and click **Next**.
- Step 13** Once the installation is complete you will need to enter a CTIOS Client Certificate password between 8 and 30 characters long to secure communication between the Agent desktop and the CTIOS Server. Click **OK**.
- Step 14** Review the *Important Note* content and click **Next** to install security compontes.
- Step 15** Once the client security setup is complete click **Finish**.
- Step 16** Once the client setup is complete click **Finish**. See [Figure B-86](#) and [Figure B-87](#).

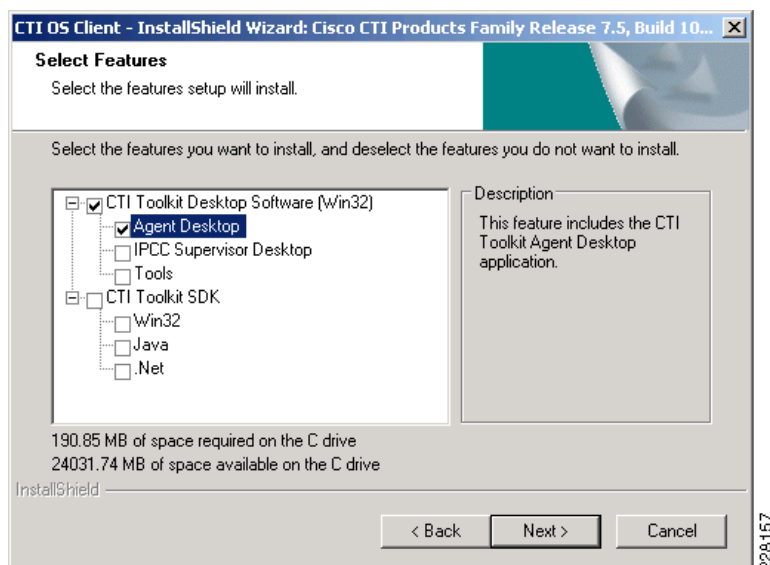
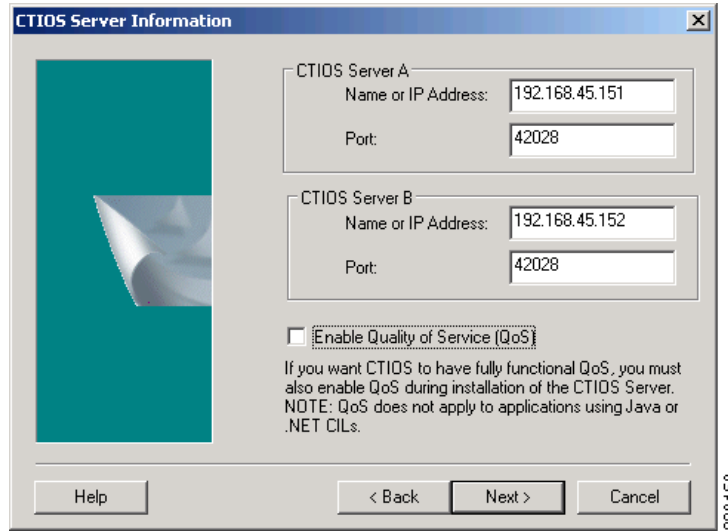
**Figure B-86**

Figure B-87



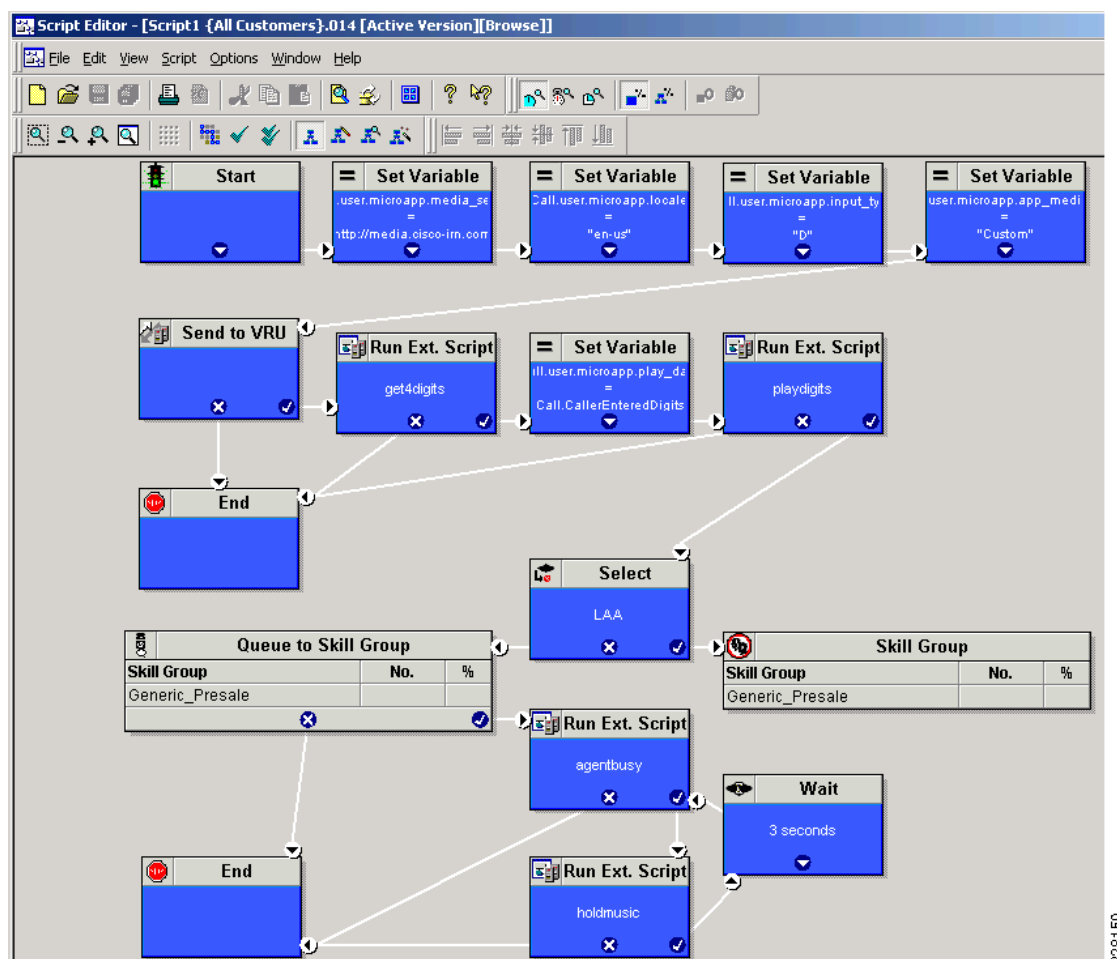
If all configurations are good and communication to the CUCM via PG is active, then agent should be able to login. At this point, it is also good idea to check if calls are being routed to the agent by making a simple ICM routing script. **Start >LAA >Skill Group Selection >Stop.**

## CUCM Routing Script

Create and schedule a routing script on AW by using the Script Editor software. Figure B-88 shows a sample routing script. The logic that is followed for creating this script is as follows:

- 
- Step 1** Start the script with the start node.
  - Step 2** Set the value of media server HTTP URL in *Call.user.microapp.media\_server* variable. This is the web server URL from where **.wav** files will be played (e.g., <http://media.cisco-irm.com>).
  - Step 3** Set the value of language in *Call.user.microapp.locale* as **en-us**.
  - Step 4** Set the value of input type (which is digits in this sample script) in *Call.user.microapp.input\_type* variable to **D**.
  - Step 5** Set the value of the *Call.user.microapp.app\_media\_lib* to **Custom**.
  - Step 6** After setting the variables send the call to IVR using “Send to VRU” node.
  - Step 7** Run external script called “get4digits” that will ask the customer to enter 4 digits (i.e., an account number).
  - Step 8** Use the Set Variable to save the value **Call.CallerEnteredDigits** in the *Call.user.microapp.play\_data* variable.
  - Step 9** Run another external scrip called *playdigits*. This script will play the value stored in *Call.user.microapp.play\_data* variable.
  - Step 10** The select Longest Available Agent (LAA) decision object.
  - Step 11** If agent is available, send the caller to agent using the Skill Group node.
  - Step 12** If agent is not available, send the caller to **Queue**.
  - Step 13** While the caller is in queue, play agent busy and music on hold **.wav** files in loop.

Figure B-88



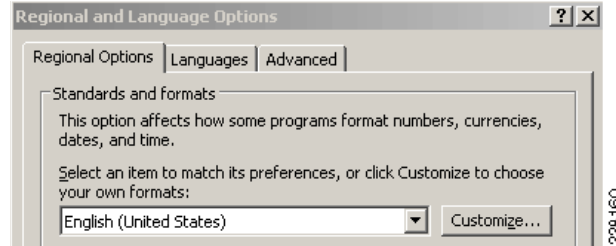
# Cisco Voice Portal Installation

## Prerequisites

- The CVP server hostname should not contain any hyphen.
- Arrange for CVP license.
- Regional and language options should be set to English.

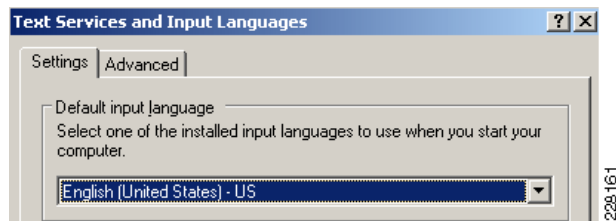
See [Figure B-89](#).

Figure B-89



Text services and input languages options should be set to English (United States) - US. See [Figure B-90](#).

Figure B-90



Only one Ethernet connection should be active on the machine. See [Figure B-91](#).

Figure B-91



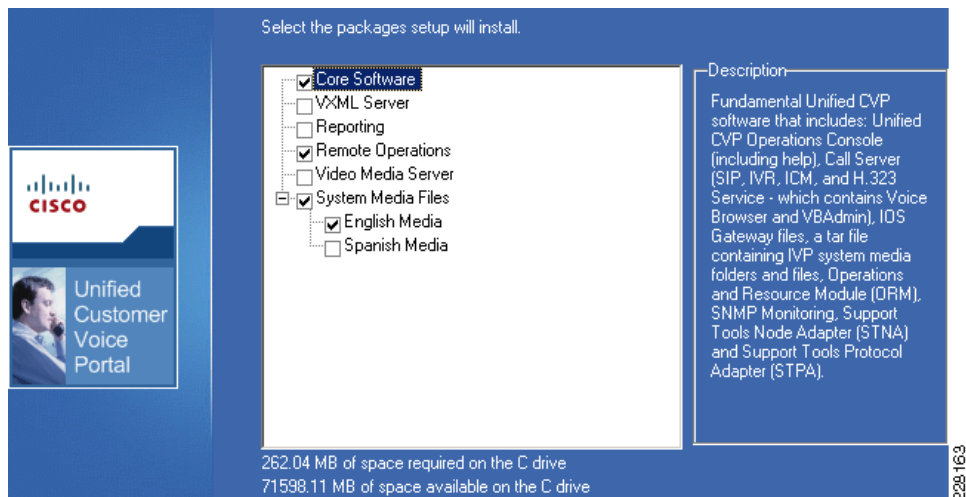
## CVP Call Server, Operation Console and Media Server Installation

In this solution deployment lab validation, CVP Call Server and the Operation Console collocated on the same machine for ease of testing.

Install the CVP server by running the **Setup.exe** program from the installation DVD. Step through the installation using the following information:

- Step 1** Select Core Software, Remote Operations and System Media Files. See [Figure B-92](#).

Figure B-92



**Step 2** Enter appropriate security certificate information. See [Figure B-93](#).

Figure B-93

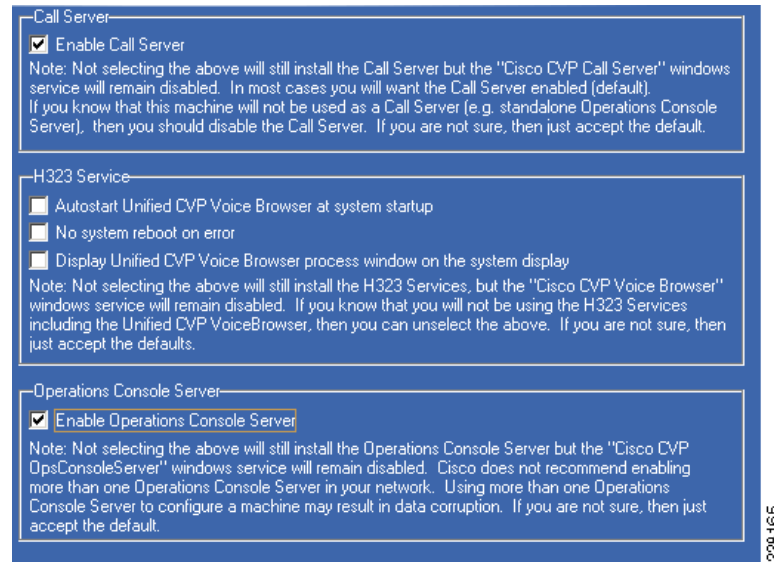
**X.509 Certificate**  
Enter the information that you would like to be included in the certificate:

Common Name:	CVP7
Organization or Company Name:	Cisco
Organizational Unit or Department:	Enterprise Voice System Architect
Locality or City:	San Jose
State or Province:	CA
Country Name (2 letter code):	US
Email address:	syali@cisco.com

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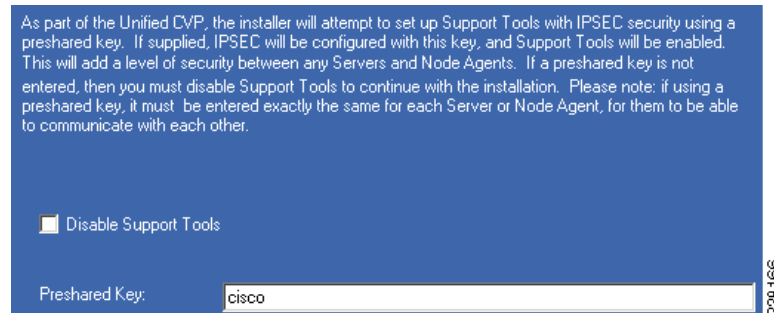
**Step 3** Enable the Call server and the Operations console. See [Figure B-94](#).

Figure B-94



**Step 4** Enter the preshare key to use between servers and node agents software. See [Figure B-95](#).

Figure B-95



## CVP Component Configuration

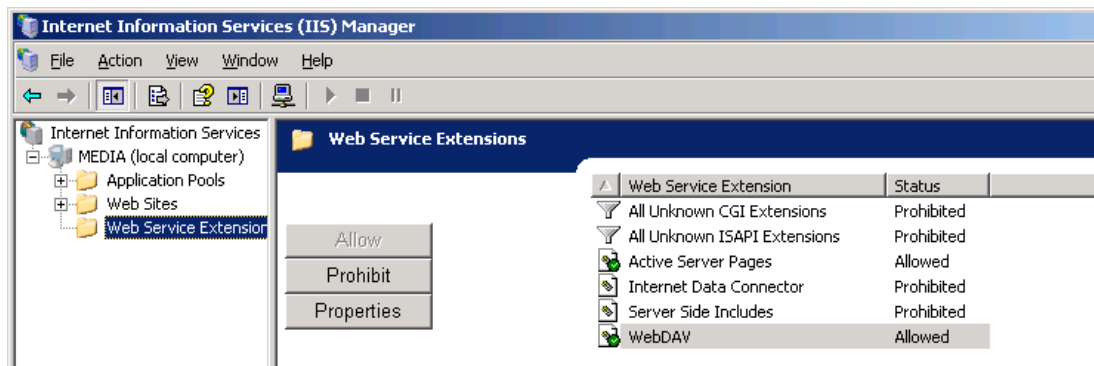
There are several components that needs to be configured before CVP can operate properly. They are as follows:

- [CVP Media Server Configuration](#)
- [CVP Call Server Configuration](#)

## CVP Media Server Configuration

This setup used Microsoft IIS as the web server to host the media files. See [Figure B-96](#).

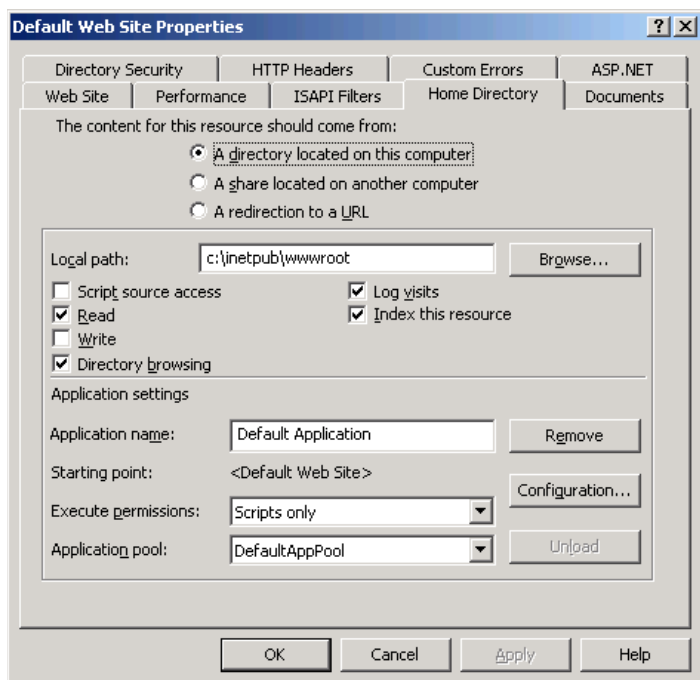
Figure B-96



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**Step 1** Enable read permission to the directory where **.wav** files are saved. See [Figure B-97](#).

Figure B-97

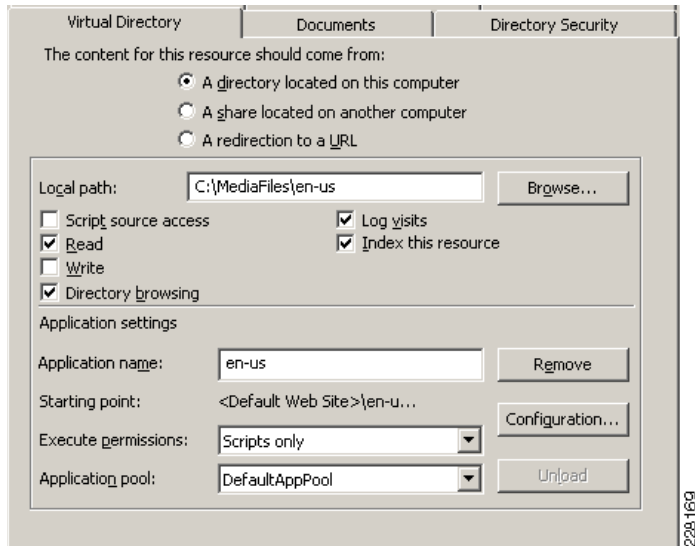


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**Step 2** Either create a Virtual Directory linking to the Media Files installed by the CVP **setup.exe**, or copy the “en-us” folder to the root of the IIS Web server. See [Figure B-98](#).

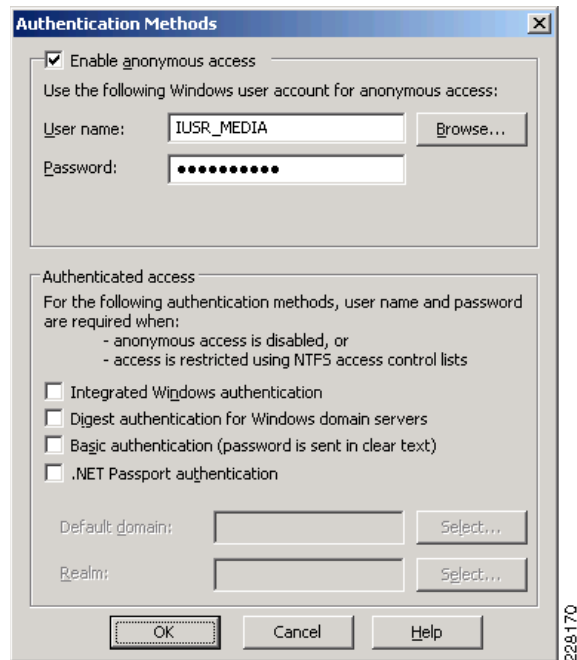


Figure B-98



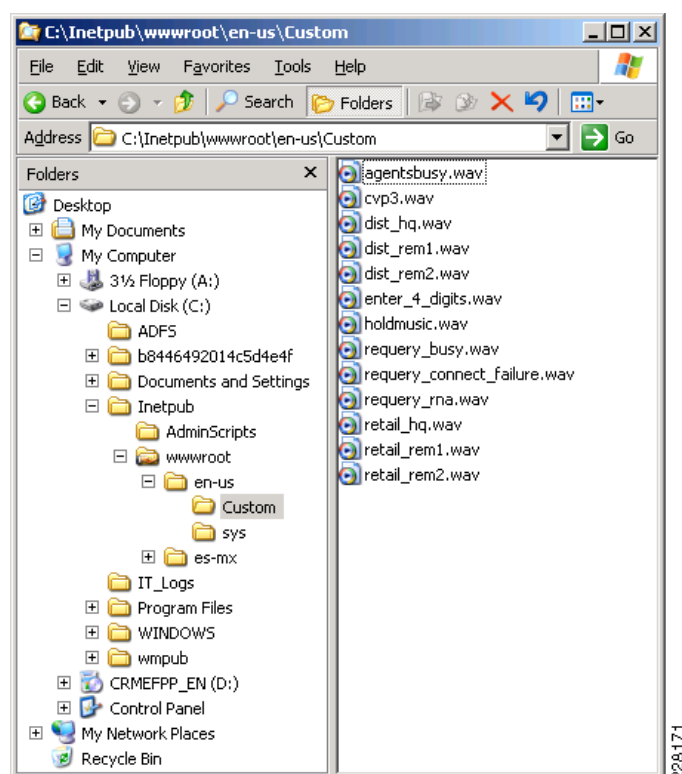
**Step 3** Make sure anonymous access is enabled and the built-in IIS User is assigned. See [Figure B-99](#).

Figure B-99



**Step 4** Create a folder named **Custom** below the **en-us** folder for the audio files in the custom scripts. See [Figure B-100](#).

Figure B-100



## CVP Call Server Configuration

Before configuring CVP call server, it should be important to know little bit about the setup and SIP call flows. Notices that these call flows are valid for the Type 10 VRU only. Also notice that “cid” is actually the correlation ID and is a numerical value.

### Call Flow

#### CUCM Originated Calls

Table B-3 CUCM Originated Calls

CUCCE Pilot Number	IP Phone caller dials CTI route point number 1000
Routing Client	SIP Gateway is the routing client
Label Returned to SIP GW by CUICM	1000+cid
Processing at SIP GW	SIP GW receives the label and sends the call to CVP Call Server
Processing at CVP	CVP receives this label and send it to CUICM as a new route-request.
Routing Client	Notice that now CVP is the routing-client
Processing at CUICM	CUICM receives its own generated label again and knows that loop is complete. And then generates a new label 1000+cid and sends to CVP

**Table B-3** CUCM Originated Calls (continued)

Processing at CVP	CVP Call Server send this label 1000+cid to VXML-GW
Processing at VXML-GW	VXML-GW has an incoming dial-peer configured that basically invokes the bootstrap tcl service
	Now a sequence of VXML communications happens between the VXML GW and CVP IVR Service. This communication is called MicroApps.
Processing at CVP	At this point CVP sends the same label 1000+cid to CUCM to inform that VXML-GW resources are engaged

Once you understand the high level overview of the call flow, it will be easy to understand the static routes needed by the CVP Call Server. Using the SIP Gateway, a single static route can be used, (e.g., >, sip-1.cisco-irn.com)

## CVP Operation Console Server

CVP Operation Console Server provides web-based front-end to configure different components in CVP environment. See [Figure B-101](#) and [Figure B-102](#).

**Figure B-101** CVP Call Server General Setting

**Figure B-102**

Hostname	IP Address	Device Type	Actions	Status	Active Calls
<a href="#">cvp-1.cisco-irn.com</a>	192.168.45.131	Call Server		Up	0
<a href="#">icm-a.cisco-irn.com</a>	192.168.45.141	ICM Server		N/A	N/A
<a href="#">icm-b.cisco-irn.com</a>	192.168.45.142	ICM Server		N/A	N/A
<a href="#">sip-1.cisco-irn.com</a>	192.168.45.188	SIP Proxy Server		N/A	N/A

## CVP Call Server ICM Configuration

See [Figure B-103](#).

Figure B-103

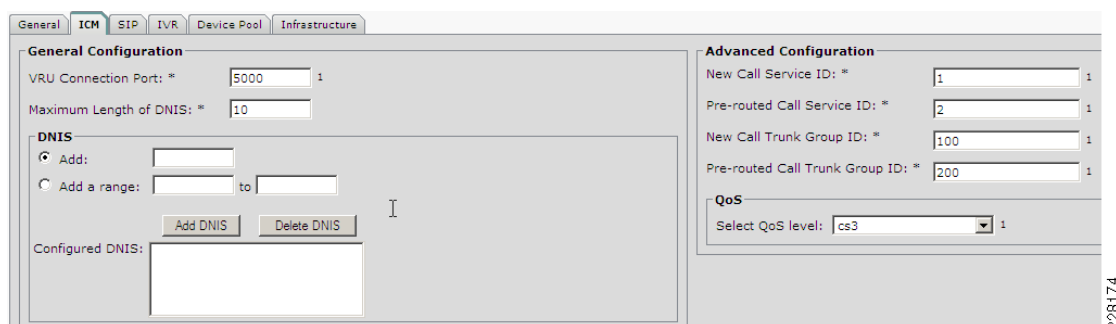


Figure B-103 shows the CVP Configuration Wizard, SIP tab. The General Configuration section includes VRU Connection Port (5000), Maximum Length of DNIS (10), and DNIS configuration (Add, Add a range, Add DNIS, Delete DNIS, Configured DNIS). The Advanced Configuration section includes New Call Service ID (1), Pre-routed Call Service ID (2), New Call Trunk Group ID (100), Pre-routed Call Trunk Group ID (200), and QoS (Select QoS level: cs3).

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## CVP Call Server SIP Configuration and Static Route

Default information was used and no fields were modified. See [Figure B-104](#).

Figure B-104

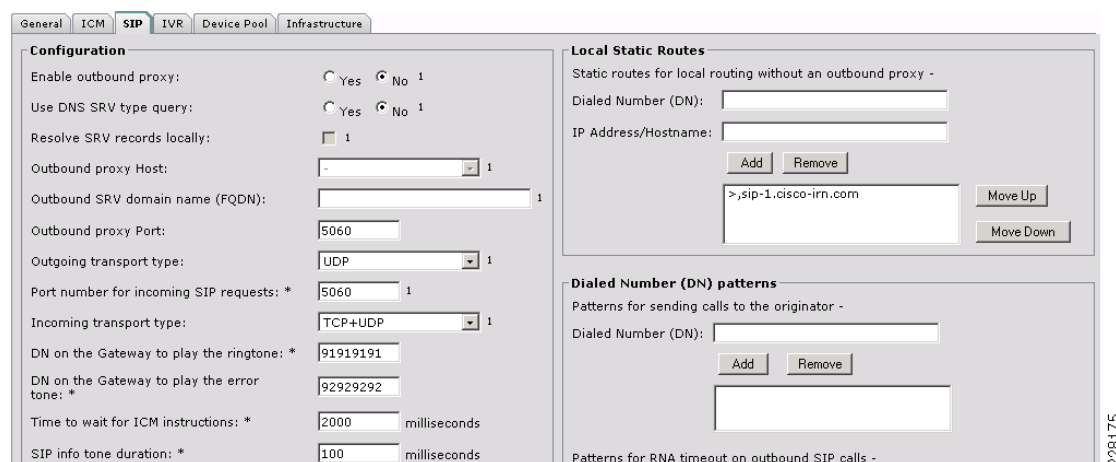


Figure B-104 shows the CVP Configuration Wizard, SIP tab. The Configuration section includes Enable outbound proxy (No), Use DNS SRV type query (No), Resolve SRV records locally (1), Outbound proxy Host (-), Outbound SRV domain name (FQDN) (sip-1.cisco-irn.com), Outbound proxy Port (5060), Outgoing transport type (UDP), Port number for incoming SIP requests (5060), Incoming transport type (TCP+UDP), DN on the Gateway to play the ringtone (91919191), DN on the Gateway to play the error tone (92929292), Time to wait for ICM instructions (2000 milliseconds), and SIP info tone duration (100 milliseconds). The Local Static Routes section includes Static routes for local routing without an outbound proxy, Dialed Number (DN) (sip-1.cisco-irn.com), and IP Address/Hostname (-). The Dialed Number (DN) patterns section includes Patterns for sending calls to the originator, Dialed Number (DN) (sip-1.cisco-irn.com), and Patterns for RNA timeout on outbound SIP calls (-).

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## VXML and Ingress Gateway Configuration

In this setup, the same router can be used as an ingress gateway as well as the VXML gateway. Note that due to VXML compatibility issues, all Cisco IOS versions are not supported. In this lab validation tested **c2800nm-ipvoicek9-mz.124-24.T1.bin**.

Copy following files to VXML Gateway router's flash memory:

```
bootstrap.tcl
bootstrap.vxml
cvperror.tcl
CVPSelfService.tcl
CVPSelfServiceBootstrap.vxml
survivability.tcl
handoff.tcl
ringtone.tcl
recovery.vxml

holdmusic.wav
```

```
ringback.wav
pleasewait.wav
critical_error.wav
en_0.wav
en_1.wav
```

## Configuration

```
version 12.4
service timestamps debug datetime localtime show-timezone
service timestamps log datetime localtime show-timezone
no service password-encryption
!
hostname VXML
!
boot-start-marker
boot system flash c2800nm-ipvoicek9-mz.124-24.T1.bin
boot-end-marker
!
logging message-counter syslog
logging buffered 100000
enable password cisco
!
no aaa new-model
clock timezone PST -8
clock summer-time PSTDST recurring
!
dot11 syslog
ip source-route
!
!
ip cef
!
!
ip domain name cisco-irn.com
ip name-server 192.168.42.130
no ipv6 cef
ntp server 192.168.0.1
ntp server 192.168.42.130
ntp server 192.168.62.161 prefer
ntp server 192.168.62.162
multilink bundle-name authenticated
!
!
voice service voip
allow-connections h323 to h323
allow-connections h323 to sip
allow-connections sip to h323
allow-connections sip to sip
fax protocol cisco
h323
emptycapability
no telephony-service ccm-compatible
no ccm-compatible
h225 id-passthru
call start slow
h245 passthru tcsnonstd-passthru
sip
ds0-num
```

```

    header-passing
  !
  !
  !
voice class codec 1
  codec preference 1 g711ulaw
  codec preference 2 g729r8
  !
voice class h323 1
  h225 timeout setup 3
  !
  !
voice translation-rule 1
  rule 1 /987654/ //
  !
  !
voice translation-profile block
  translate called 1
  !
  !
voice-card 0
  dsp services dspfarm
  !
http client cache memory pool 15000
http client cache memory file 500
ivr prompt memory 15000
  !
application
  service new-call flash:bootstrap.vxml
    paramspace english language en
    paramspace english index 0
    paramspace english location flash:
    paramspace english prefix en
  !
  service cvp-survivability flash: survivability.tcl
    paramspace english language en
    paramspace english index 0
    param alert-timeout 20
    paramspace english location flash
    paramspace callfeature med-inact-det enable
    param setup-timeout 7
    paramspace english prefix en
  !
  service ringtone flash:ringtone.tcl
    paramspace english language en
    paramspace english index 0
    paramspace english location flash
    paramspace english prefix en
  !
  service recovery flash:recovery.vxml
    paramspace english language en
    paramspace english index 0
    paramspace english location flash:
    paramspace english prefix en
  !
  service cvperror flash:cvperror.tcl
    paramspace english index 0
    paramspace english language en
    paramspace english location flash
    paramspace english prefix en
  !
  service takeback flash: survivability.tcl
    paramspace english language en
    paramspace english index 0

```

```
paramspace english location flash
paramspace english prefix en
!
service HelloWorld flash:CVPSelfService.tcl
paramspace english index 0
paramspace english language en
param CVPService-port 7000
param CVPSelfService-app HelloWorld
param CVPPrimaryVXMLServer 192.168.45.131
paramspace english location flash
paramspace english prefix en
param CVPBackupVXMLServer 192.168.45.132
!
service handoff flash:handoff.tcl
paramspace english language en
paramspace english index 0
paramspace english location flash
paramspace english prefix en
!
service bootstrap flash:bootstrap.tcl
paramspace english index 0
paramspace english language en
paramspace english location flash:
paramspace english prefix en
!
!
vxml version 2.0
!
archive
log config
hidekeys
!
!
interface FastEthernet0/0
description Connection to SACCESS-g1/33
ip address 192.168.45.101 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet0/1
no ip address
shutdown
duplex auto
speed auto
!
interface GigabitEthernet1/0
no ip address
shutdown
!
!
ip forward-protocol nd
ip route 0.0.0.0 0.0.0.0 192.168.45.1
!
ip http server
no ip http secure-server
!
control-plane
!
mgcp fax t38 ecm
mgcp behavior g729-variants static-pt
!
! <===Configuration for Trusted Relay===>
sccp local FastEthernet0/0
sccp ccm 192.168.45.182 identifier 1 version 7.0
```

```

sccp ccm 192.168.80.181 identifier 2 version 7.0
sccp
!
sccp ccm group 1
  associate ccm 1 priority 1
  associate profile 1 register MTP-01
!
sccp ccm group 2
  associate ccm 2 priority 1
  associate profile 2 register MTP-02
!
dspfarm profile 2 mtp
  codec g711ulaw
  codec pass-through
  maximum sessions software 110
  associate application SCCP
!
dspfarm profile 1 mtp
  codec g711ulaw
  codec pass-through
  maximum sessions software 110
  associate application SCCP
! <====End Configuration for Trusted Relay====>
!
dial-peer voice 9191 voip
  service ringtone
  session protocol sipv2
  incoming called-number 9191T
  dtmf-relay rtp-nte
  codec g711ulaw
  no vad
!
dial-peer voice 9292 voip
  service cvperror
  session protocol sipv2
  incoming called-number 9292T
  dtmf-relay rtp-nte
  codec g711ulaw
  no vad
!
dial-peer voice 1006 voip
  translation-profile incoming block
  service bootstrap
  session protocol sipv2
  incoming called-number 1006T
  dtmf-relay rtp-nte
  codec g711ulaw
  ip qos dscp cs3 signaling
  no vad
!
dial-peer voice 987654 voip
  translation-profile incoming block
  incoming called-number 987654
!
!
!
line con 0
  exec-timeout 0 0
line vty 0 4
  exec-timeout 0 0
  password cisco
  login
line vty 5 15
  exec-timeout 0 0

```



```
password cisco
login
!
scheduler allocate 20000 1000
end
```

## Expert Advisor Installation

The installation is on VOS. It is very simple. Refer to the *Installation Guide for Cisco Unified Expert Advisor 7.6(1)* for additional information. Follow these steps:

- 
- Step 1** Media Check: select **Yes** if you want to check the media.
  - Step 2** Product Deployment Selection: Click **OK**.
  - Step 3** Proceed with Install: **Yes**.
  - Step 4** Platform Installation Wizard: Click on **Proceed**.
  - Step 5** Apply Patch: Click **No**.
  - Step 6** Basic Install: Click on **Continue**.
  - Step 7** Timezone Configuration: Select your timezone.
  - Step 8** Auto Negotiation Configuration: Select the default option **Yes**.
  - Step 9** MTU Configuration: Select the default option: **No**.
  - Step 10** DHCP Configuration: Select **No**.
  - Step 11** Static Network Configuration: Enter the information for your network.
  - Step 12** DNS Client Configuration: Click **Yes**.
  - Step 13** DNS Client Configuration: Enter your DNS information.
  - Step 14** Administrator Login Configuration: Enter your Administrator ID and password information.
  - Step 15** Certification Information: Enter your Certificate Information.
  - Step 16** First Node Configuration: Click **Yes** if you are installing your first node. If you are installing the second Expert Advisor Server or the reporting server, click **No**.
  - Step 17** Network Time Protocol Client Configuration: Click **Yes**.
  - Step 18** Network Time Protocol Client Configuration: Enter the NTP Client information.
  - Step 19** Database Access Security Configuration: Enter the system security password.
  - Step 20** SMTP Host Configuration: Select **No** if you are not configuring a SMTP Host for this machine.
  - Step 21** Application User Configuration: Enter the Application (GUI) username and password.
  - Step 22** Platform Configuration Confirmation: Click on **Ok**.

For more information on the installation of the Expert Advisor servers, refer to the *Installation Guide for Cisco Unified Expert Advisor 7.6(1)*.

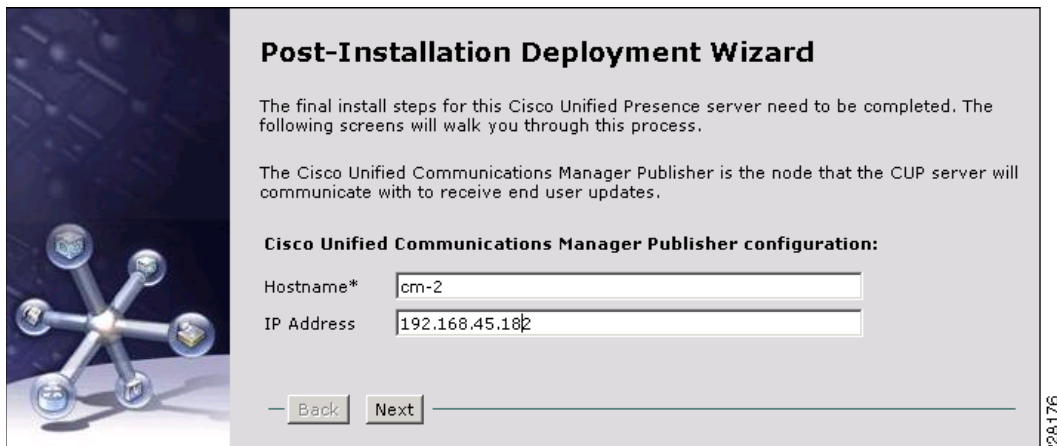
## CUP Installation

The CUP installation is very similar to the installation of Expert Advisor, since it is also running on Unified Communications Operating System (UCOS). Follow the steps above for base installation.

Once the server is installed, a few post install steps need to be done; log into the server via the web interface: **http://<YourCUPServerAddress>/ccmadmin**.

After the install, enter the post install information. See [Figure B-105](#) to [Figure B-109](#).

**Figure B-105**



**Post-Installation Deployment Wizard**

The final install steps for this Cisco Unified Presence server need to be completed. The following screens will walk you through this process.

The Cisco Unified Communications Manager Publisher is the node that the CUP server will communicate with to receive end user updates.

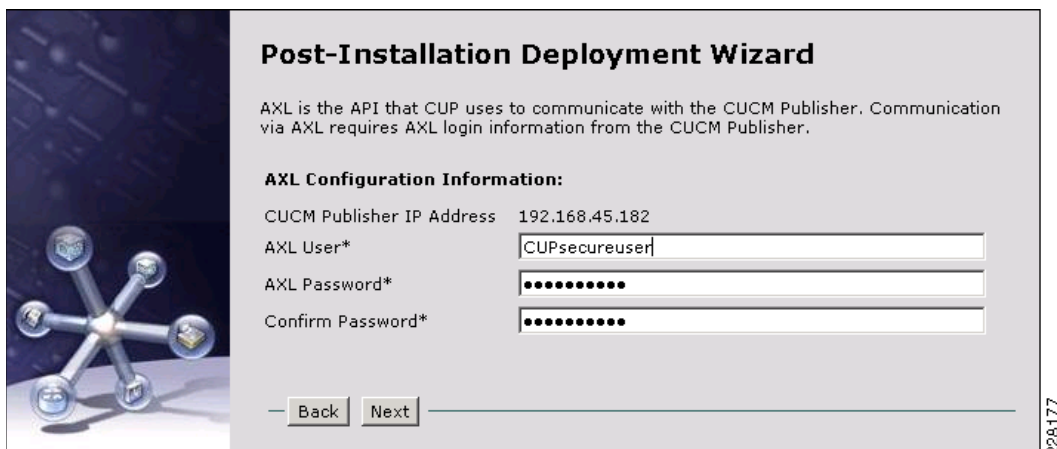
**Cisco Unified Communications Manager Publisher configuration:**

Hostname\*

IP Address

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**Figure B-106**



**Post-Installation Deployment Wizard**

AXL is the API that CUP uses to communicate with the CUCM Publisher. Communication via AXL requires AXL login information from the CUCM Publisher.

**AXL Configuration Information:**

CUCM Publisher IP Address

AXL User\*

AXL Password\*

Confirm Password\*

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Figure B-107



### Post-Installation Deployment Wizard

The IPSec Security password is used to secure communication among CUCM and CUP nodes. This password must match the security password as configured on the CUCM Publisher node.

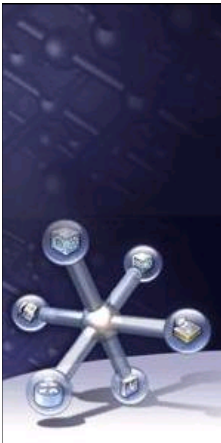
**Security Password configuration:**

Security Password\*

Confirm Password\*

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Figure B-108



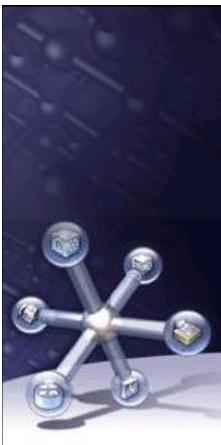
### Post-Installation Deployment Wizard

Please verify the information below and click Confirm. If any information is incorrect, please go back and correct it before proceeding.

Hostname	cm-2
IP Address	192.168.45.182
AXL User	CUPsecureuser

228179

Figure B-109



### Post-Installation Deployment Wizard

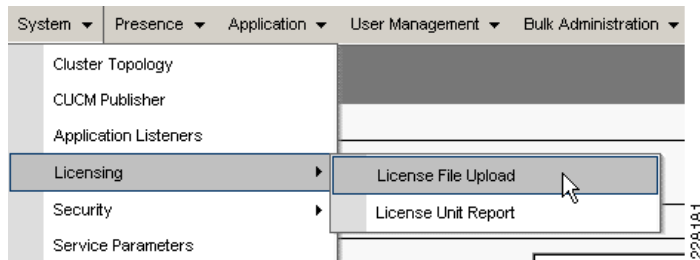
Post-Installation Deployment has been completed. Click below where you want to go next.

<input type="button" value="Home"/>	- Administration Home Page
<input type="button" value="System Dashboard"/>	- System Dashboard
<input type="button" value="Topology"/>	- System Topology

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Obtain a license. Upload the license. See [Figure B-110](#).

**Figure B-110**



## Configuration

### CUP

- Step 1** Activate the Cisco UP SIP Proxy, Cisco UP Presence and Cisco UP Sync Agent Services. See [Figure B-111](#).

**Figure B-111**

**Select Server**

Server\*

☐ Check All Services

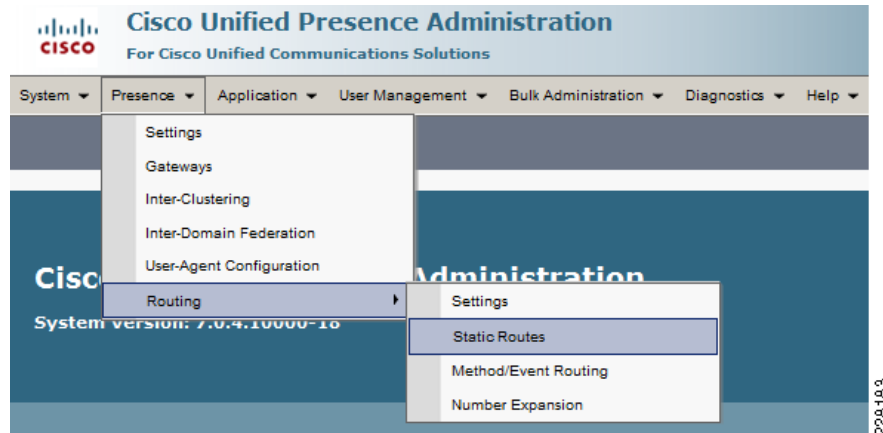
Database and Admin Services		
	Service Name	Activation Status
<input checked="" type="checkbox"/>	Cisco AXL Web Service	Activated
<input checked="" type="checkbox"/>	Cisco Bulk Provisioning Service	Activated

Performance and Monitoring Services		
	Service Name	Activation Status
<input checked="" type="checkbox"/>	Cisco Serviceability Reporter	Activated

CUP Services		
	Service Name	Activation Status
<input checked="" type="checkbox"/>	Cisco UP SIP Proxy	Activated
<input checked="" type="checkbox"/>	Cisco UP Presence Engine	Activated
<input checked="" type="checkbox"/>	Cisco UP Sync Agent	Activated

- Step 2** Go to **Presence > Routing > Static Routes**. See [Figure B-112](#).

Figure B-112



**Step 3** And add routes to the Expert Advisor Runtime server. See [Figure B-113](#).

Figure B-113

Static Route (1 - 7 of 7)										Rows per Page 50
Find Static Route where Destination Pattern begins with <input type="text"/> Find Clear Filter										
<input type="checkbox"/>	Destination Pattern	Blocked	Description	Next Hop	Next Hop Port	Priority	Weight	Protocol Type	In Service	
<input type="checkbox"/>	1005*		To send the call to CVP	cvp-1.cisco-irn.com	5060	1	1	UDP	On	
<input type="checkbox"/>	1006*		To send the call to the VXML GW	vxml.cisco-irn.com	5060	1	1	UDP	On	
<input type="checkbox"/>	12..		Translation Routes to Expert Advisor	ea-1.cisco-irn.com	5060	1	1	UDP	On	
<input type="checkbox"/>	5...		To branch phones	cm-2.cisco-irn.com	5060	1	1	UDP	On	
<input type="checkbox"/>	6...		To branch phones	cm-2.cisco-irn.com	5060	1	1	UDP	On	
<input type="checkbox"/>	91919191		Ring tone	vxml.cisco-irn.com	5060	1	1	UDP	On	
<input type="checkbox"/>	92929292		Error Tone	vxml.cisco-irn.com	5060	1	1	UDP	On	
Add New Select All Clear All Delete Selected										

**Step 4** Create a Presence Gateway so that Unified CM can send presence information to the Cisco Unified Presence Server. Go to **Presence > Presence Gateways**. See [Figure B-114](#).

Figure B-114

**Presence Gateway Settings (Cisco Unified Communications Manager)**

You can configure a Cisco Unified Communications Manager server as a presence gateway. The Cisco Unified Presence server will then send SIP Subscribe messages to Cisco Unified Communications Manager over a SIP trunk which will allow the Cisco Unified Presence server to receive presence information (e.g. phone on/off hook status).

Presence Gateway Type\*

Description\*

Presence Gateway\*

- Step 5** Configure a Proxy Domain so that CUPC users can connect to the CUP server to obtain presence information. Go to **System > Service Parameters**.
- Step 6** Set the “Proxy Domain” field to the correct DNS domain.
- Step 7** Configure Incoming ACL: configure which hosts, domains, and CUPC clients can access CUP Server.
- Step 8** Go to **System > Security > Incoming ACL**. See [Figure B-115](#).

Figure B-115

Incoming ACL Entry (1 - 8 of 8)			Rows per Page 50
Find Incoming ACL Entry where Address Pattern begins with			Find Clear Filter + -
<input type="checkbox"/>	Address Pattern ^	Description	
<input type="checkbox"/>	10.10.	all store hosts	
<input type="checkbox"/>	192.168.	all hosts in 192.168.x.x	
<input type="checkbox"/>	192.168.81.101	Expert Advisor - ea-1.cisco-irn.com	
	cm-2.cisco-irn.com	System Generated Allow Rule	
<input type="checkbox"/>	cvp-1.cisco-irn.com	CVP Server	
<input type="checkbox"/>	cvp-2.cisco-irn.com	CVP Server	
	sip-1.cisco-irn.com	System Generated Allow Rule	
<input type="checkbox"/>	vxml.cisco-irn.com	calls to vxml gateway	
Add New Select All Clear All Delete Selected			

228186

**Step 9** Configure TFTP Server for CUPC.

**Step 10** Go to **Application > Cisco Unified Personal Communicator > Settings**. See Figure B-116.

Figure B-116

CUPC Global Settings	
Proxy Listener*	Default Cisco SIP Proxy TCP Listener
Primary TFTP Server	cm-2.cisco-irn.com
Backup TFTP Server	
Backup TFTP Server	

228187

**Step 11** Add SIP Publish capability to the SIP trunk between CUCM and CUP. This will allow CUCM to provide phone presence information to CUP server.

**Step 12** Go to the CUP server, **Application > Presence > Settings**.

**Step 13** Check the **Enable SIP Publish on CUCM**.

**Step 14** Select the SIP trunk configured on CUCM. See Figure B-117.

Figure B-117

Global Settings	
<input type="checkbox"/>	CVP Enable ACL Configuration
<input checked="" type="checkbox"/>	Enable Instant Messaging (cluster-wide)
<input checked="" type="checkbox"/>	Enable/Disable ability for users to view presence on blocked users
<input type="checkbox"/>	Enable Email ID for Federation
Max Contact List Size (per user)*	200
Max List Box Items*	250
Cluster ID*	StandAloneCluster
<input checked="" type="checkbox"/> <b>Enable SIP Publish on CUCM</b>	
CUCM SIP Publish Trunk	SIP-1_Proxy

228188

**Note**

Another way to do this is to go directly to the CUCM admin page, **Service Parameter, Cisco CallManager**, and select the SIP trunk in the field **CUP Publish Trunk**

- Step 15** Configure Conferencing hosts as appropriate. Go to **Application > Cisco Unified Personal Communicator > Conferencing Server>New servers**. See [Figure B-118](#).

**Figure B-118**

Conferencing Host (1 - 2 of 2)					
Rows per Page: 50					
Find Conferencing Host where Name begins with Find Clear Filter + -					
<input type="checkbox"/>	Name ^	Description	Hostname/IP Address	Port	Server Type
<input type="checkbox"/>	<a href="#">Meeting Place Express</a>	MPX 211	mp3.cisco-irn.com	80	MeetingPlace Express
<input type="checkbox"/>	<a href="#">VEM Webex Conference</a>	lab webex	ciscocmo-dev.webex.com	443	WebEx
Add New Select All Clear All Delete Selected					

- Step 16** After the server is configured, create a Conferencing profile and add users to the profile. See [Figure B-119](#).

**Figure B-119**

**Conferencing Profile Configuration**

Name\*:

Description:

Primary Conferencing Server\*:

Backup Conferencing Server:

Backup Conferencing Server:

☒ Make this the default Conferencing Profile for the system.

---

**Users in Profile**

<input type="checkbox"/>	User ID	Firstname	Lastname
<input type="checkbox"/>	<a href="#">Jack3</a>	jack3	Large
<input type="checkbox"/>	<a href="#">jack2</a>	Jack	Large
<input type="checkbox"/>	<a href="#">jill1</a>	Jill	Small
<input type="checkbox"/>	<a href="#">jill2</a>	Jill	Small
<input type="checkbox"/>	<a href="#">jill3</a>	jill3	Small
<input type="checkbox"/>	<a href="#">john1</a>	john	mini
<input type="checkbox"/>	<a href="#">john2</a>	John	Mini
<input type="checkbox"/>	<a href="#">john3</a>	john3	mini

Add Users to Profile Select All Clear All Delete Selected Rows per Page:

Save Delete Add New

## CUCM

Since in this solution calls are originated from an IP Phone, create a CTI RP (you could also send the call to CVP with a Route Pattern, but here, the scenario covers where the call is sent to CVP using a CTI RP) and add a DN for this CTI RP (in our example, 1000 and 1301 DNs are used). If your calls are coming directly to CVP via a PSTN GW, you do not need these steps. See [Figure B-120](#) and [Figure B-121](#).

**Figure B-120**

**Device Information**

Registration  
IP Address  
Device Name\*  
Description  
Device Pool\*  
Common Device Configuration  
Calling Search Space  
Location\*  
User Locale  
Media Resource Group List  
Network Hold MOH Audio Source  
User Hold MOH Audio Source  
Use Trusted Relay Point\*  
Calling Party Transformation CSS  
Geo Location  
☒ Use Device Pool Calling Party Transformation CSS

Registered with Cisco Unified Communications Manager cm-2.cisco-irn.com  
192.168.45.152  
CTI-RP-1000  
CTI-RP Cti Route Point 1000  
Default  
< None >  
< None >  
Hub\_None  
< None >  
< None >  
< None >  
< None >  
Default  
< None >  
< None >  
[View Details](#)  
[View Details](#)

**Association Information**

Line [1] - 1000 (no partition)

Line [2] - Add a new DN

Save Delete Copy Reset Apply Config Add New

**Figure B-121**

CTI Route Point (1 - 2 of 2)								
Rows per Page 50								
Find CTI Route Point where Device Name begins with Find Clear Filter + -								
Select item or enter search text								
<input type="checkbox"/>	Device Name	Description	Device Pool	Calling Search Space	Partition	Extension	Status	IP Address
<input type="checkbox"/>	<a href="#">CTI-RP-1000</a>	CTI-RP Cti Route Point 1000	<a href="#">Default</a>			<a href="#">1000</a>	Registered with cm-2.cisco-irn.com	192.168.45.152
<input type="checkbox"/>	<a href="#">CTI-RP-1301</a>	Route for Expert Advisor	<a href="#">Default</a>			<a href="#">1301</a>	Registered with cm-2.cisco-irn.com	192.168.45.152
Add New Select All Clear All Delete Selected Reset Selected Apply Config to Selected								

**Step 1** Associate the CTI-RP to the jtapi user that the Agent PG is using to connect to CUCM. See [Figure B-122](#).



Figure B-122

The screenshot displays two configuration sections. The top section, 'Application User Information', contains fields for 'User ID\*' (filled with 'jtapi'), 'Password', 'Confirm Password', 'Digest Credentials', 'Confirm Digest Credentials', and 'Presence Group\*' (a dropdown menu showing 'Standard Presence group'). Below these are four unchecked checkboxes: 'Accept Presence Subscription', 'Accept Out-of-dialog REFER', 'Accept Unsolicited Notification', and 'Accept Replaces Header'. An 'Edit Credential' button is located to the right of the password fields. The bottom section, 'Device Information', features an 'Available Devices' list box (currently empty) and a 'Controlled Devices' list box containing the following entries: CTI-RP-1000, CTI-RP-1301, SEP0017956DD439, SEP0017E0355BCD, and SEP0018199456D4. To the right of the 'Available Devices' list are three buttons: 'Find more Phones', 'Find more Route Points', and 'Find more Pilot Points'. A vertical label '228193' is positioned on the right side of the 'Device Information' section.

**Step 2** Add the CUP server in the Application server Configuration as shown in [Figure B-123](#) and [Figure B-124](#).

Figure B-123

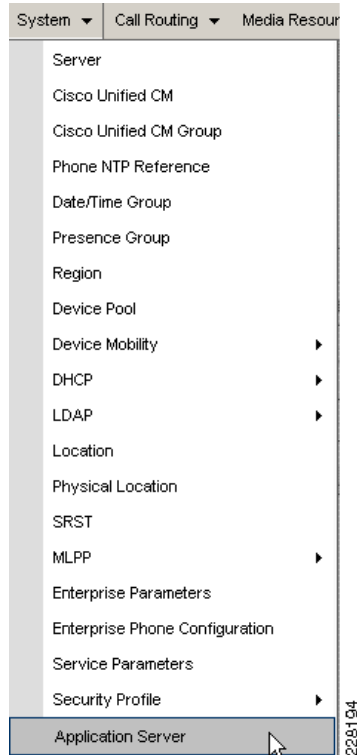


Figure B-124

 A screenshot of a form titled 'Application Server Information'. The form contains the following fields: 'Application Server Type' (set to 'Cisco Unified Presence Server'), 'Name \*' (with the value 'SIP-1.cisco-irn.com'), 'URL', and 'End User URL'. Below the form are four buttons: 'Save', 'Delete', 'Copy', and 'Add New'. To the right of the form, the number '228195' is visible.

- Step 3** If the expert advisor user will use CUPC as a softclient, create a phone device on CUCM for the CUPC softclients. Select the **Cisco Unified Personal Communicator** Phone Type. See [Figure B-125](#).

Figure B-125

 A screenshot of a form titled 'Select the type of phone you would like to create'. The form contains a single dropdown menu labeled 'Phone Type \*' with the value 'Cisco Unified Personal Communicator' selected. To the right of the dropdown, the number '228196' is visible.

- Step 4** The device name must start with UPC and be followed, all capital letters, by the username of the expert advisor that will use the client. See [Figure B-126](#).

Figure B-126

<b>Phone Type</b>	
Product Type:	Cisco Unified Personal Communicator
Device Protocol:	SIP
<b>Device Information</b>	
Registration	Unknown
IP Address	Unknown
<input checked="" type="checkbox"/> Is Active	
Device Name*	UPCJOHN1
Description	John 1 Mini
Device Pool*	Default <a href="#">View Details</a>
Common Device Configuration	< None > <a href="#">View Details</a>
Phone Button Template*	Standard Unified Communicator SIP
Common Phone Profile*	Standard Common Phone Profile

228197

**Step 5** Add a DN for each of the CUPC device.

**Step 6** Add expert advisor users as shown in Figure B-127.

Figure B-127

The screenshot displays the 'End User Configuration' interface. At the top, there are navigation tabs: System, Call Routing, Media Resources, Voice Mail, Device, Application, User Management, and Bulk Administration. Below these, the 'End User Configuration' section includes 'Save', 'Delete', and 'Add New' buttons. The 'Status' section shows 'Status: Ready'. The 'User Information' section contains various input fields for user details. The 'Device Associations' section shows 'Controlled Devices' with the values 'SEP00258418216A' and 'UPCJOHN1'. A dropdown menu is open on the right, showing options like 'Credential Policy Default', 'Credential Policy', 'Application User', 'End User', 'Role', 'User Group', 'User/Phone Add', 'Application User CAPF Profile', 'End User CAPF Profile', and 'SIP Realm'. The 'End User' option is selected.

228198

**Step 7** In the *Directory Number Association* field, select the primary Extension for the user. See Figure B-128.

Figure B-128

- Step 8** If allowing CTI deskphone mode for the users, make the user part of the **Standard CTI Enabled** user group. See [Figure B-129](#).

Figure B-129

- Step 9** For each Expert Advisor user, go to their phone configuration and then line configuration, go to the section **Users Associated with Line**, and associate the end user (expert advisor user) that will use this phone. See [Figure B-130](#).

Figure B-130

This will change the CUPC client availability to “On the Phone” when the expert advisor user goes off hook on one of his associated phone devices.

- Step 10** Add an CUCM user for each Expert Advisor Runtime server. See [Figure B-131](#).

Figure B-131

- Step 11** Enable presence and CUPC capabilities for the Expert Advisor users and also for the user that the Expert Advisor runtime server will use to connect to CUP (in our case, ExpertAdvisor user).
- Step 12** In **System > Licensing > Capabilities Assignment**, enable CUP and CUPC for each Expert Advisor user. See [Figure B-132](#).

Figure B-132

Capabilities Assignment Information	
<input checked="" type="checkbox"/>	Enable CUP (Cisco Unified Presence)
<input checked="" type="checkbox"/>	Enable CUPC (Cisco Unified Personal Communicator)

228204

- Step 13** Configure a SIP Trunk between CUCM and CUP server (enter the IP address or DNS name of the CUP server in the *Destination Address* field). See [Figure B-133](#).

Figure B-133

<input type="checkbox"/>	Name ^	Description	Calling Search Space	Device Pool	Route Pattern	Partition	Route Group	Priority	Trunk Type	SIP Trunk Security Profile
<input type="checkbox"/>	<a href="#">SIP-I Proxy</a>	Trunk to CUP Server		Default	<a href="#">10021</a>				SIP Trunk	<a href="#">Non_Secure SIP Trunk Profile</a>
<input type="checkbox"/>	<a href="#">nice-1</a>	SIP Trunk to NICE Server		Default			<a href="#">Route-to-NICE-1</a>	1	SIP Trunk	<a href="#">Non_Secure SIP Trunk Profile</a>

228205

## CUP Server Configuration

### LDAP Configuration

LDAP is an optional component of the Unified Expert Advisor system and is not required for routing requests. It allows Expert Advisor users to search through the AD with their CUPC client.

- Step 1** Go to **Application > Cisco Unified Personal Communicator > LDAP Server**. See [Figure B-134](#).

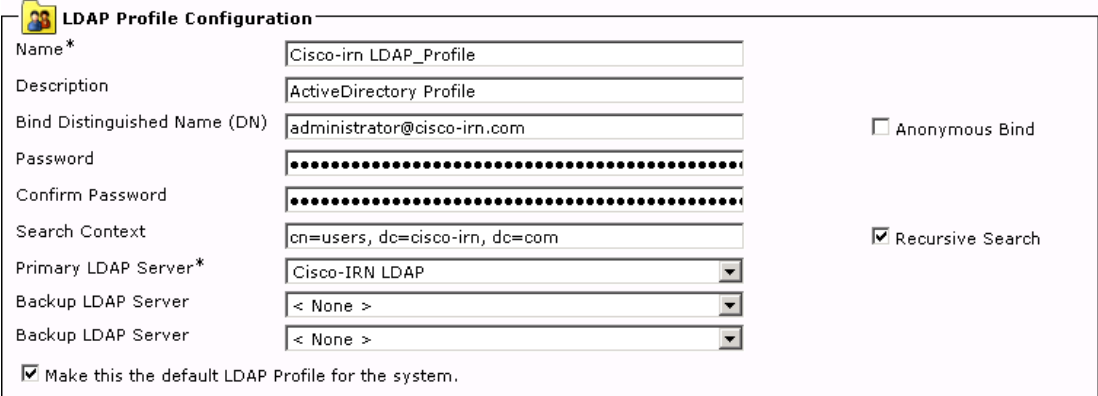
Figure B-134

LDAP Host Configuration	
Name*	Cisco-IRN LDAP
Description	Activedirectory server
Hostname/IP Address*	activedirectory.cisco-irn.com
Port*	389
Protocol Type*	TCP

228206

- Step 2** Go to: **Application > Cisco Unified Personal Communicator > LDAP Profile**.
- Step 3** Enter the information of your LDAP directory and click on **Add Users to profile**. The users that are shown are the users entered in CUCM that were downloaded into CUP server, with the right capability settings configured in CUCM administration page. See [Figure B-135](#).

Figure B-135



**LDAP Profile Configuration**

Name\* Cisco-irn LDAP\_Profile

Description ActiveDirectory Profile

Bind Distinguished Name (DN) administrator@cisco-irn.com

Password .....

Confirm Password .....

Search Context cn=users, dc=cisco-irn, dc=com

Primary LDAP Server\* Cisco-IRN LDAP

Backup LDAP Server < None >

Backup LDAP Server < None >

☒ Make this the default LDAP Profile for the system.

☐ Anonymous Bind

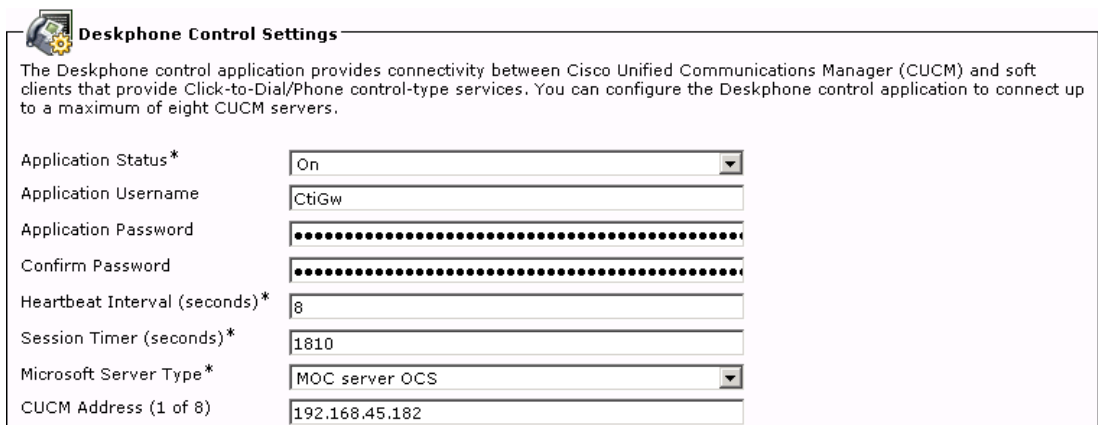
☒ Recursive Search

228207

**Step 4** If you are deploying OCS/LCS and want to enable deskphone control with CUPC, go to **Application > Deskphone Control > Settings**.

**Step 5** Select **On** for the **Application Status** and enter the jtapi CtiGw information and CTIM information. See [Figure B-136](#).

Figure B-136



**Deskphone Control Settings**

The Deskphone control application provides connectivity between Cisco Unified Communications Manager (CUCM) and soft clients that provide Click-to-Dial/Phone control-type services. You can configure the Deskphone control application to connect up to a maximum of eight CUCM servers.

Application Status\* On

Application Username CtiGw

Application Password .....

Confirm Password .....

Heartbeat Interval (seconds)\* 8

Session Timer (seconds)\* 1810

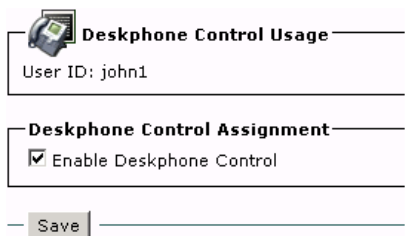
Microsoft Server Type\* MOC server OCS

CUCM Address (1 of 8) 192.168.45.182

228208

**Step 6** Select **Application > Deskphone Control > User Assignment** and check the **Enable Deskphone Control** checkbox. See [Figure B-137](#).

Figure B-137



**Deskphone Control Usage**

User ID: john1

**Deskphone Control Assignment**

☒ Enable Deskphone Control

Save

228209

**Note**

You do not have to go to **Application > Deskphone Control > Settings** in order to enable **Deskphone Control**, if you are not using OCS/LCS.

## Expert Advisor Configuration

- Step 1** Go to **http://<EA-ip-address>**. Expert Advisor system can be deployed with expert advisor users using either Cisco Unified Presence or Microsoft Office Communicator, not both types in the same Expert Advisor deployment. See [Figure B-138](#).

**Figure B-138**

**Please select the type of IM clients your experts will be using to connect to Expert Advisor.**

**IMPORTANT: This setting is permanent and cannot be changed without re-installing Expert Advisor and re-entering your configuration.**

- ☒ Cisco Unified Presence  
☐ Microsoft Office Communicator

228210

- Step 2** Go through the Guided Configuration Wizard. See [Figure B-139](#).

**Figure B-139**

Start Guided Configuration Wizard

Would you like to configure the System using the Guided Configuration Wizard?

☐ Do not ask again

OK Cancel

228211

- Step 3** Upload the license. If not, the system comes with a default license of 5 users. See [Figure B-140](#).

**Figure B-140**

Configure License

Please browse to and upload your license file, which sets the number of Expert Advisors you are authorized to enable.

**Current License**

Total Licenses available for Enabled Expert Advisors: 5

**License File Management**

Select a local license file to upload : C:\Documents and Settings\Administrator\Desktop\ Browse...

228212

- Step 4** Configure the Primary Runtime Server. In the *CUP user* field, enter the CUP user that Expert Advisor runtime server will use to connect to the CUP server. See [Figure B-141](#).

Figure B-141

**Configure Primary Runtime Server**

**Configure Runtime Server**

Type: Primary

\* Name: ea-1.cisco-irn.com

\* Host Address: 192.168.81.101

Description:

**Cisco Unified Presence Server**

	Host Address	Port number
* 1 CUP server:	sip-1.cisco-irn.com	5060
* 1 CUP server proxy domain:	cisco-irn.com	
* 1 CUP user:	ExpertAdvisorSystem	

\* Required fields

<sup>1</sup> Change in value requires device restart

Back Next Skip Cancel Help

**Step 5** Configure the secondary Runtime Server. Skip if you do not deploy a HA Runtime server. See Figure B-142.

Figure B-142

**Configure High Availability Server**

**Configure Runtime Server**

Type: High Availability

\* Name:

\* Host Address:

Description:

**Cisco Unified Presence Server**

	Host Address	Port number
* 1 CUP server:		5060
* 1 CUP server proxy domain:	cisco-irn.com	
* 1 CUP user:		

\* Required fields

<sup>1</sup> Change in value requires device restart

Back Next Skip Cancel Help



- Step 6** Configure an Expert Advisor reporting server. Skip if you do not deploy a Expert Advisor reporting server. See [Figure B-143](#).

**Figure B-143**

**Configure Reporting Server**

**General**

\* Name:

\* Host Address:

Description:

**Reporting Properties**

Define the maximum disk space to use to persist reporting data on the runtime servers during reporting server outages or loss of connectivity.

\* Max Storage Size (MB):

\* Required fields

229215

- Step 7** Configure a AD server. See [Figure B-144](#).

Figure B-144

**Configure Active Directory**

**Active Directory Server**

\* Host Address for Primary Active Directory Server:  \* Port:  Use SSL: ☐

Host Address for Redundant Active Directory Server:  Port:  Use SSL: ☐

\* Manager Distinguished Name:

\* Manager Password:

\* Confirm Manager Password:

\* User Search Base:

\* Attribute for User ID:

\* Required fields

Back Next Skip Cancel Help

229216

**Step 8** Configure the ICM translation route. These DNIS numbers need to be routable by your system (for example, enter a route in CUP SIP proxy). See [Figure B-145](#).

**Figure B-145**

Configure Unified ICM Translation Route Targets

**Specify Unified ICM DNIS Range**

\* Starting DNIS: 1200

\* Ending DNIS: 1202

\* Required fields

Back Next Skip Cancel Help

228217

**Step 9** Configure the Cisco Unified Presence servers. See [Figure B-146](#).

Figure B-146

**Synchronize Presence Users**

**Presence Servers**

\* Primary Presence Server: sip-1.cisco-irn.com

Secondary Presence Server: sip-1.cisco-irn.com

\* Presence Server Username: bmcgloth

\* Presence Server Password: .....

Test Connection

**Synchronization Schedule**

**Frequency**

☐ Not Scheduled

☒ Every 5 minute(s)

**Start Date and Time**

Time 12 AM

Day Sunday

\* Required fields

Click Next to Synchronize Presence Users.

Back Next Skip Cancel Help

**Step 10** Verify the summary. See [Figure B-147](#).

Figure B-147

**Guided Initial Configuration Wizard Summary**

You have successfully completed the following steps in the Initial Configuration Wizard:

- Welcome to Guided Initial Configuration Wizard
- Configure Primary Runtime Server
- Configure Primary Runtime Server
- Configure Unified ICM Translation Route Targets
- Configure Unified ICM Translation Route Targets
- Synchronize Presence Users
- Synchronize Presence Users

If you have skipped some steps, return to this wizard at any time by opening it from the System Management drawer.

Please note that you must supplement this initial configuration by completing some additional procedures. Click **Help** on this screen for details on full configuration.

Click **Done** to close the wizard and return to the Cisco Unified Expert Advisor Welcome screen.

Back Next Skip Cancel Help

**Step 11** In **System Management** tab, click on **Synchronize Presence Users**.

**Step 12** Click on the **Synchronization** tab, click on **Synchronize Now**. Among other tasks, this will download the list of users from the CUP server. See [Figure B-148](#).

Figure B-148

**Connection** **Synchronization**

**Status**

**Synchronization Task Status**

Synchronization Task Status Refresh: No Refresh Go

Current Status: Idle

Duration:

Last Completion Time: 12/07/2009 9:14:02 PM PST

Last Result: Success

**AXL Web Service Status**

Primary Presence Server Enabled Enable AXL Web Service

Secondary Presence Server Enabled Enable AXL Web Service

As of: 12/07/2009 9:15:44 PM PST Refresh AXL Web Service

Note: Status may be delayed by 10 seconds

**Synchronization Schedule**

**Frequency**

☐ Not Scheduled

☒ Every 5 minute(s)

**Start Date and Time**

Time 12 AM

Day Sunday

**Manual Synchronization**

Synchronize Now

Click to start the synchronization immediately.

\* Synchronize Now saves the connection and schedule settings

\* Required fields

2288220

**Step 13** Add Expert Advisor users. In Daily Management tab, click on **Expert Advisors**.

**Step 14** Click on **Add New**. Select the users from CUP. See [Figure B-149](#).

Figure B-149

**Expert Advisors** Items 1-5 of 5 | Rows per page: 10

Filter:  Match if:

<input type="checkbox"/>	Presence ID	First Name	Last Name	Locale	Unified ICM ID	Enabled	* Status
<input type="checkbox"/>	<a href="#">jack2</a>	Jack	Large	en_US	28	True	Valid
<input type="checkbox"/>	<a href="#">jill1</a>	Jill	Small	en_US	29	True	Valid
<input type="checkbox"/>	<a href="#">jill2</a>	Jill	Small	en_US	26	True	Valid
<input type="checkbox"/>	<a href="#">john1</a>	john	mini	en_US	25	True	Valid
<input type="checkbox"/>	<a href="#">john2</a>	John	Mini	en_US	24	True	Valid

**Licenses Available:** 0 **Licenses Used:** 5

Page  of 1

\* Invalid means that the Expert Advisor no longer exists in the Presence Server.

228221

- Step 15** Configure settings for the expert advisor users and click on **Add as Expert Advisors**. See Figure B-150.

Figure B-150

**Configure Expert Advisors**

**Expert Advisor Properties**

**General**

Description:

\* Locale:

\* Message Set:

☒ Enabled ☒ Can Reject Contacts

**Selected Skills**

**Skills** Items 0-0 of 0 | Rows per page: 50

<input type="checkbox"/>	Skill Name	Expert Advisor Competency Level
No data to display		

Page  of 0

**Selected Attributes**

**Attributes** Items 0-0 of 0 | Rows per page: 50

<input type="checkbox"/>	Attribute Name	Attribute Value
No data to display		

Page  of 0

228222

- Step 16** In **Daily Management**, select **Skills**. Click on **Add New**.
- Step 17** Enter a name for the Skill and click on **Add** in the **Expert Advisors** section.
- Step 18** Select the users that will belong to this skill and click on **Add and Close**.

**Step 19** Click on **Save**. See [Figure B-151](#).

**Figure B-151**

**Configure Skill**

Save Cancel Refresh Help

**General**

**General**

\*Name: Customer Service

Description: Customer Service Expert

**Expert Advisors**

**Selected Expert Advisors** Items 1-4 of 4 | Rows per page: 50 Go

<input type="checkbox"/>	Presence ID	First Name	Last Name	Competency	Status
<input type="checkbox"/>	john1	john	mini	50	Valid
<input type="checkbox"/>	jill2	Jill	Small	50	Valid
<input type="checkbox"/>	jack2	Jack	Large	50	Valid
<input type="checkbox"/>	jill1	Jill	Small	50	Valid

Add Edit Edit All Delete

Page 1 of 1

**Assignment Queues**

List of Assignment Queues associated with this Skill.

Assignment Queue Name	In Use

\*Required fields

Save Cancel Refresh

228223

**Step 20** Create an Assignment Queue. In **Daily Management**, select **Assignment Queues**. Click on **Add New**.

**Step 21** Enter a Name for the assignment queue. Enter an incoming label. This label will need to be routable by the CUP SIP Proxy. Select the other appropriate settings, for simplicity use the Queue CTI-RP DN number. Click on **Save**. See [Figure B-152](#).

Figure B-152

**Configure Assignment Queue**

Save Cancel Refresh Help

**General** Membership

**General**

\* Name: Expert Service

Description: Expert Level General Customer Service - High Touch

**Unified ICM**

\* <sup>1</sup> Incoming Label: 1301 Test Uniqueness

\* Skill Group Peripheral Number: 47

\* Skill Group Peripheral Name: Expert\_Service

**Selection Strategy**

☒ Queue ordering

☒ Longest Available

☐ Least Skilled

☐ Most Skilled

☐ Queue to Expert

☐ Spatial

**Selected Attributes** Items 0-0 of 0 Rows per page: 50 Go

Name	Description	Default Value
No data to display		

Add Delete Page 0 of 0

**Advanced**

Broadcast Number: 1 Broadcast Number greater than 50 can adversely affect performance.

\* Offer Task Timeout: 30 (seconds)

\* Required fields

<sup>1</sup> Changes to the Incoming Label require corresponding changes to Unified ICM.

Save Cancel Refresh

228224

**Step 22** Click on the **Membership** tab.

**Step 23** Add the expert advisor users that should belong to this assignment queue. Click on **Add and Close**. See [Figure B-153](#).



Figure B-153

General **Membership**

\*Membership Rules: Expert Advisors

Currently Enabled: **Expert Advisors**

**Expert Advisors**

Selected Expert Advisors Items 1-3 of 3 | Rows per page: 50 Go

	Presence ID	Name		Locale	Presence State(s)		Status
		First	Last		Active	Inactive	
<input type="checkbox"/>	john1	john	mini	en_US	Yes	No	Valid
<input type="checkbox"/>	jack2	Jack	Large	en_US	Yes	No	Valid
<input type="checkbox"/>	jill1	Jill	Small	en_US	Yes	No	Valid

Add Edit Edit All Delete Page 1 of 1

\*Required fields  
 †Required if Skills or Attributes are selected.

Save Cancel Refresh

**Step 24** Start the Expert Advisor runtime service.

**Step 25** Go to **Serviceability > Control Center**. Select the runtime server and click on **Start**. The status should be in “Running (in service)”. See [Figure B-154](#).

Figure B-154

**Devices** Items 1-1 of 1 | Rows per page: 10 Go

Filter: Name Match if: Contains Go Clear Filter

	Name	Host Address	Device Type	Status
<input type="radio"/>	<a href="#">ea-1.cisco-irn.com</a>	192.168.81.101	Runtime	Running (in service)

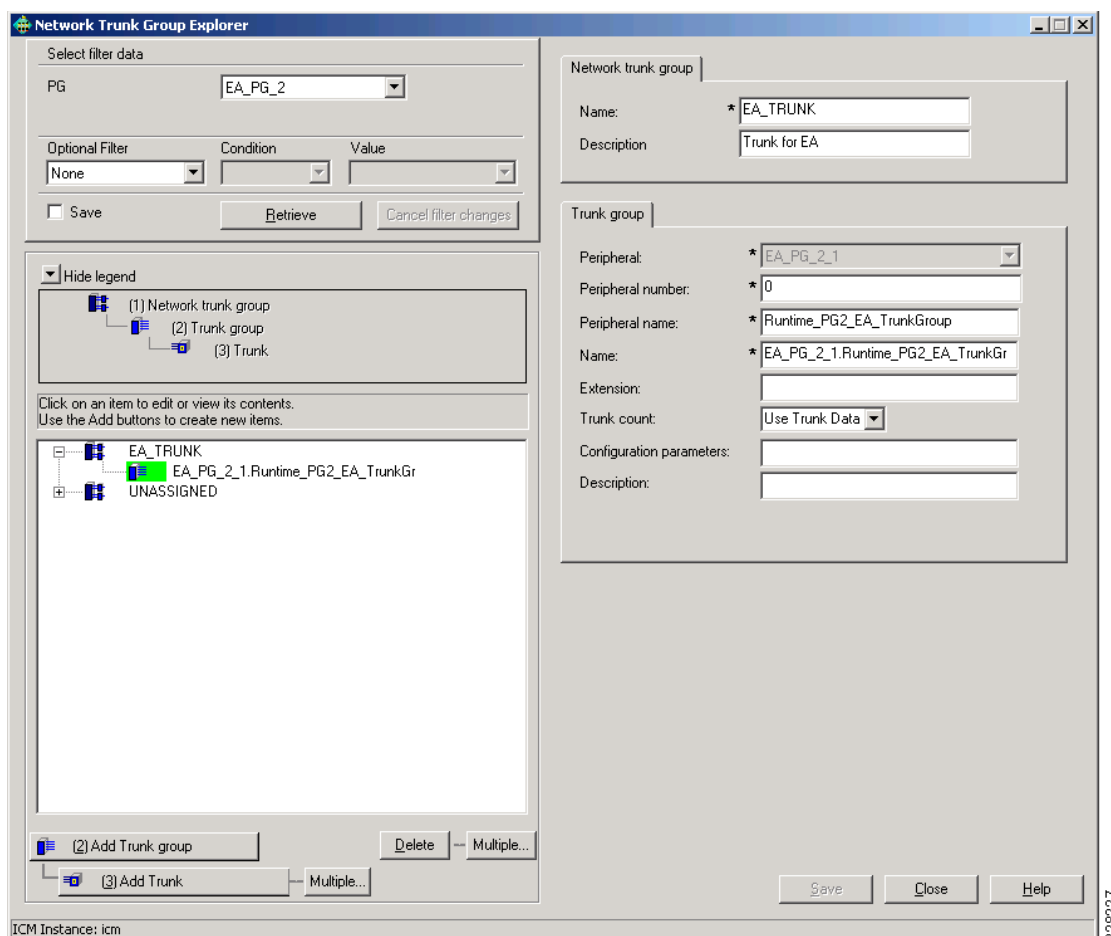
Start Shutdown Restart Page 1 of 1

## ICM Configuration

To configure ICM, complete the following steps:

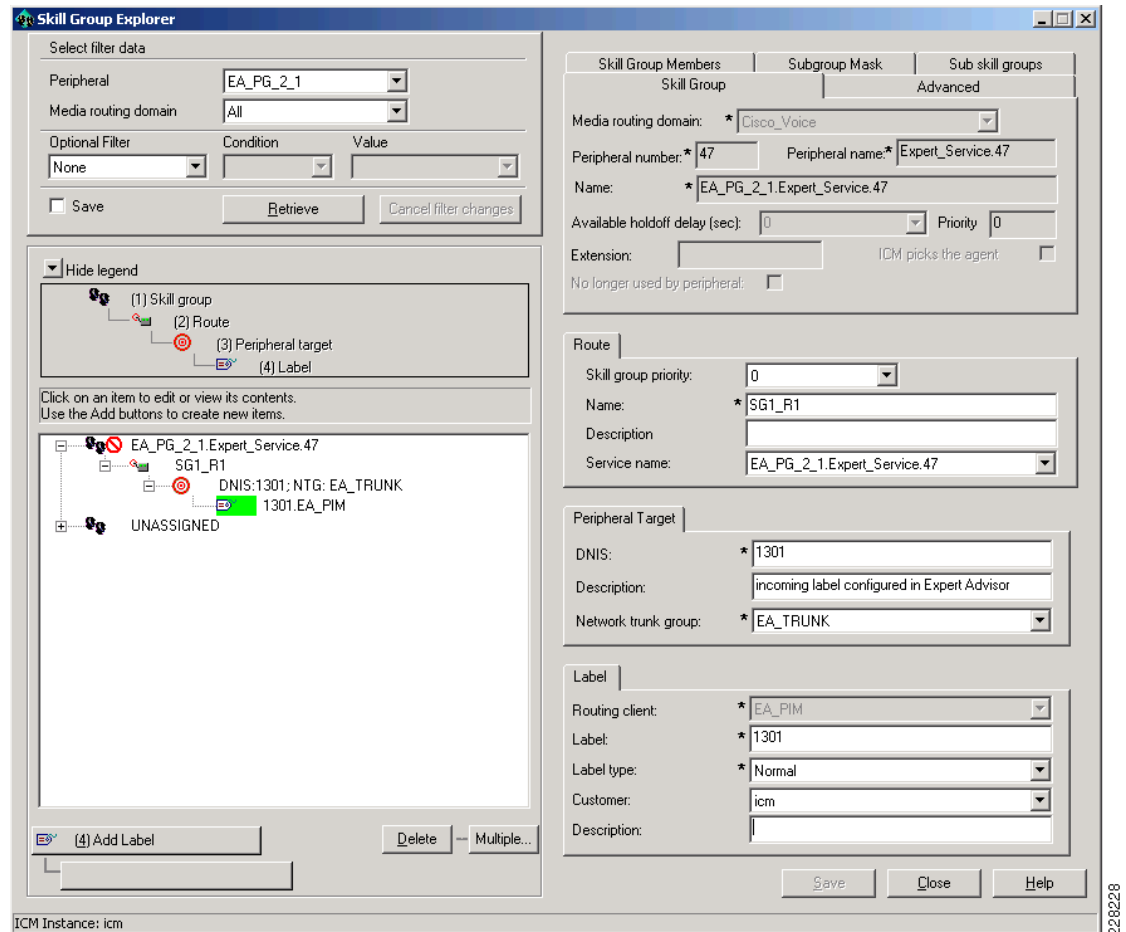
- Step 1** Select the PG for expert advisor and click on **Retrieve**.
- Step 2** Click on **Add Network Trunk** group. Enter a name for the Network trunk group.
- Step 3** Click on **Add Trunk**. Provide a Peripheral name, and select **Use Trunk Data** for the Trunk count. See [Figure B-155](#).

Figure B-155



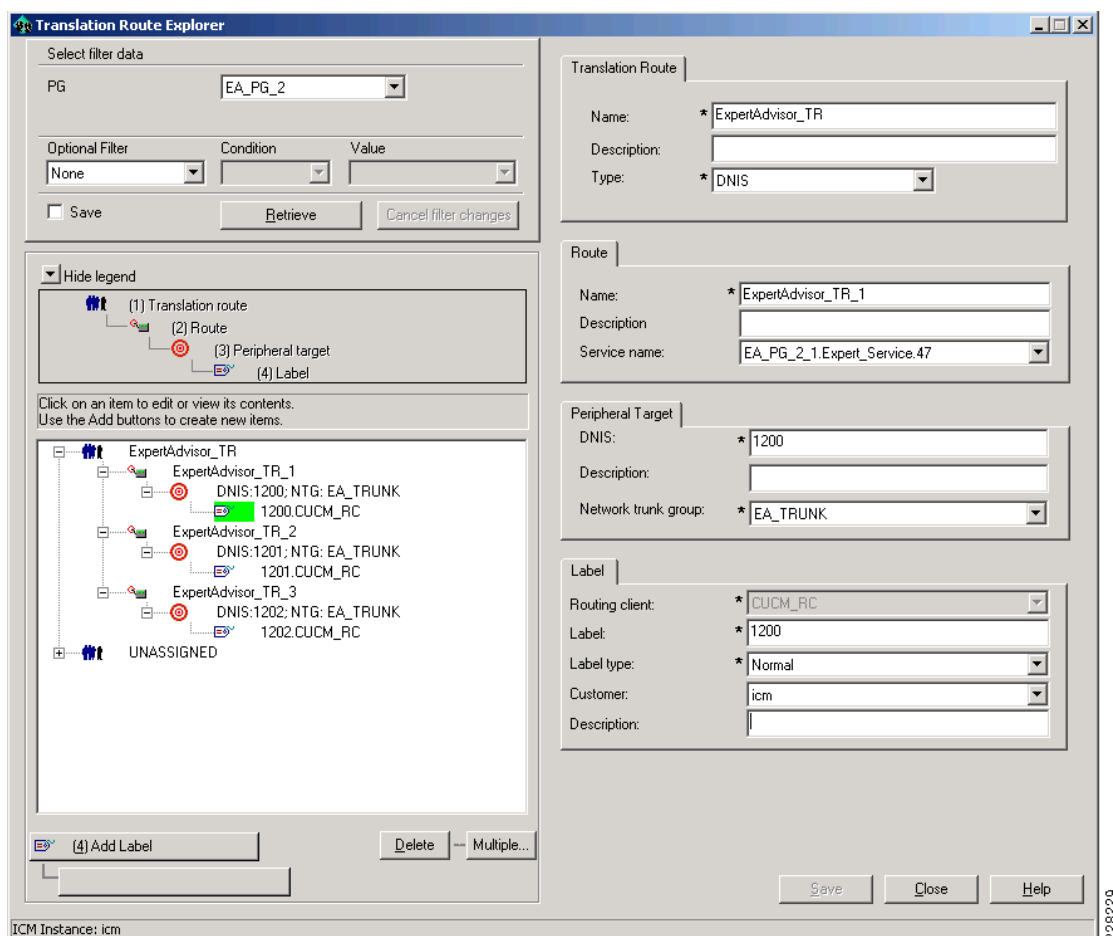
- Step 4** On the Unified ICM Configuration Manager, select **Explorer Tools > Skill Group Explorer**.
- Step 5** Select the Expert Advisor PG, select **Retrieve**.
- Step 6** You should see the Skill Group/AssignmentQueue that was configured on Expert Advisor.
- Step 7** Click on **Add Route** and add the route information.
- Step 8** Click on **Save**. This adds a new button to **Add Peripheral target**. Click on that button.
- Step 9** Enter the DNIS that should be the same as the Incoming Label configured on Expert Advisor Operations Console.
- Step 10** Select the Expert Advisor Network trunk group. Click on **Save**.
- Step 11** Click on **Add Label**. Select the Expert Advisor PIM. Enter the label that should be the same as the DNIS entered above.
- Step 12** Click on **Save**. See [Figure B-156](#).

Figure B-156



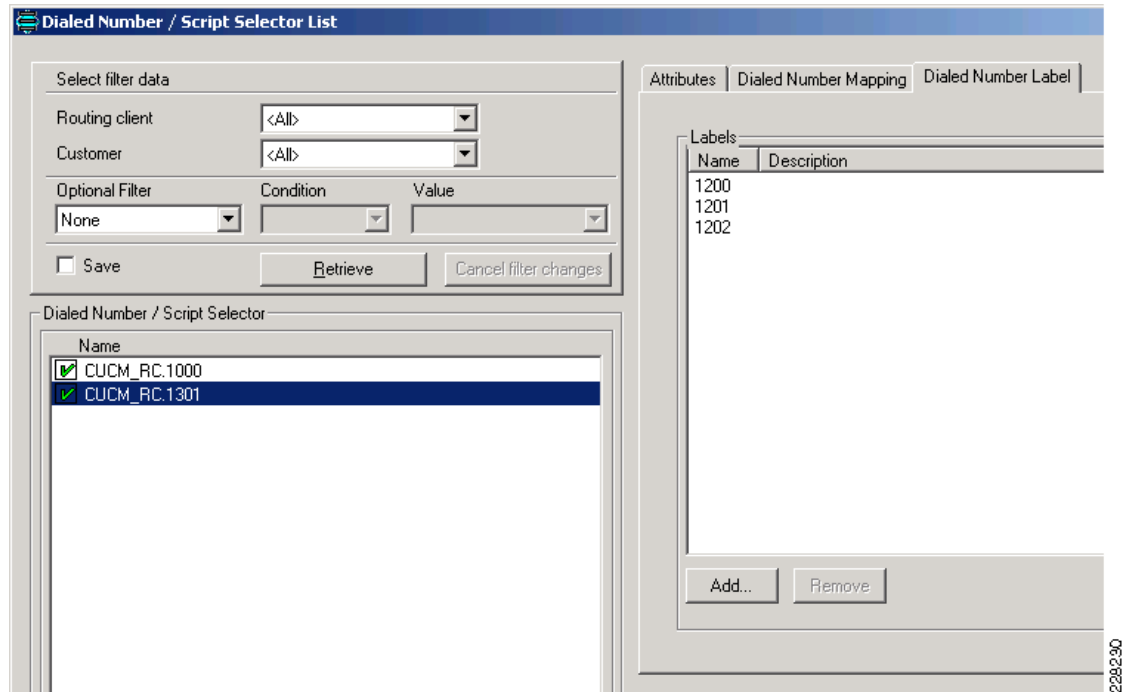
- Step 13** Configure the translation routes. On Configuration Manager, select **Explorer Tools > Translation Route Explorer**.
- Step 14** Select the PG for the Expert Advisor runtime server. Click on **Retrieve**.
- Step 15** Click on **Add Translation route**. Enter a name for the translation route. Click on **Add Route**.
- Step 16** Enter a name for the Route and click on **Save**.
- Step 17** Click on **Add Peripheral target**. Enter the DNIS to send the call to Expert Advisor runtime. Select the **Network trunk group** and click on **Save**.
- Step 18** Click on **Add Label**. Select the CVP Routing client, enter the label (same as the DNIS configured for the Peripheral target). Click on **Save**. See [Figure B-157](#).
- Step 19** Repeat those steps for other Translation Routes assigned to Expert Advisor.

Figure B-157



- Step 20** Edit the Dialed Number for the Expert Advisor. This is the number that customer or agent will dial to reach an expert advisor user.
- Step 21** In Config Manager, go to **List Tools > Dialer Number / Script Selector List** and edit the Dialed Number for the CM Routing Client that was created previously.
- Step 22** Go to the **Dialed Number Label** tab and click on **Add**.
- Step 23** Select all the translation routes configured for Expert Advisor and press **OK**. See [Figure B-158](#).

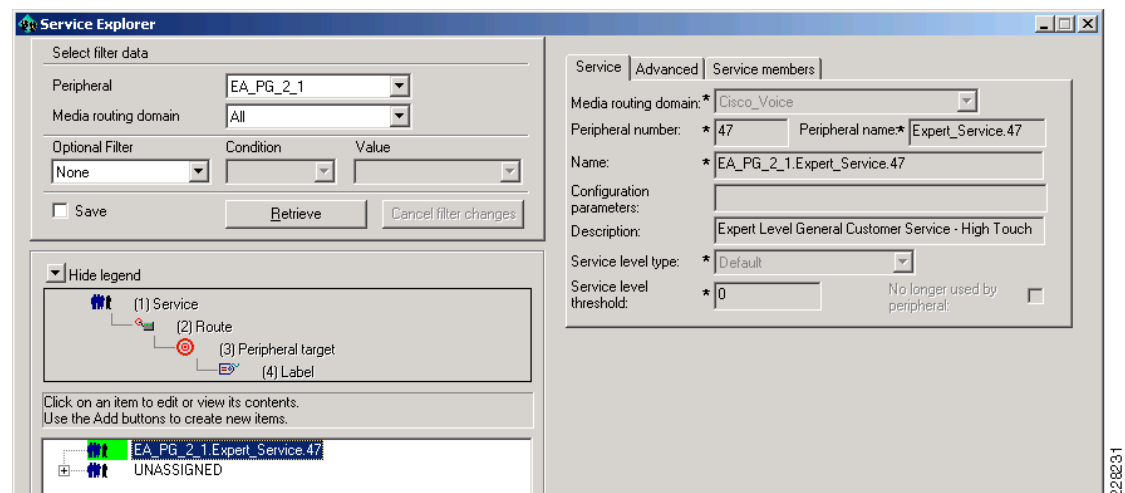
Figure B-158



**Step 24** Click on **Save**.

**Step 25** In the Config Manager on the Admin Workstation open the **Service Explorer** option under **Tools > Explorer Tools**. Check that the Expert Advisor server has connected to the queue service. See Figure B-159.

Figure B-159

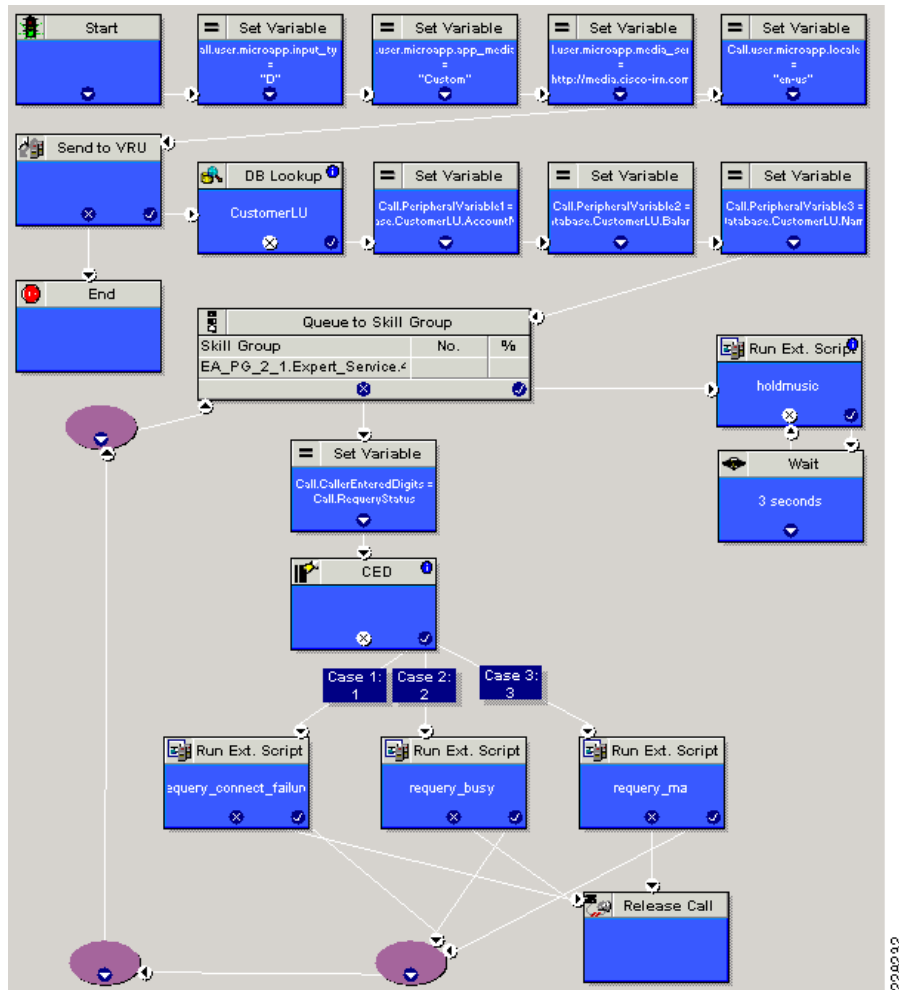


## Expert Advisor Script

Create the ICM Script for the Expert Advisor Queue on the AW by using the Script Editor software. shows a sample routing script. The logic that is followed for creating this script is as follows:

- 
- Step 1** Start the script with the start node.
  - Step 2** Set the value of media server HTTP URL in *Call.user.microapp.media\_server* variable. This is the web server URL from where **.wav** files will be played (e.g., <http://media.cisco-irn.com>).
  - Step 3** Set the value of language in *Call.user.microapp.locale* as **en-us**.
  - Step 4** Set the value of input type (which is digits in this sample script) in *Call.user.microapp.input\_type* variable to **"D"**.
  - Step 5** Set the value of the *Call.user.microapp.app\_media\_lib* to **Custom**.
  - Step 6** After setting the variables send the call to IVR using **Send to VRU** node.
  - Step 7** Perform a DB lookup based on the calling number and/or caller entered digits for an account number.
  - Step 8** Use the Set Variable to save the values of the data retrieved from the Database as PeripheralVariables under the Call object type.
  - Step 9** Send the caller to Queue using the Queue to Skill Group, add the **EA\_PG\_2\_1 Skill** group.
  - Step 10** While the caller is in queue, play agent busy and music on hold **.wav** files in loop. See [Figure B-160](#).

Figure B-160



228032

## Trouble Shooting Tip

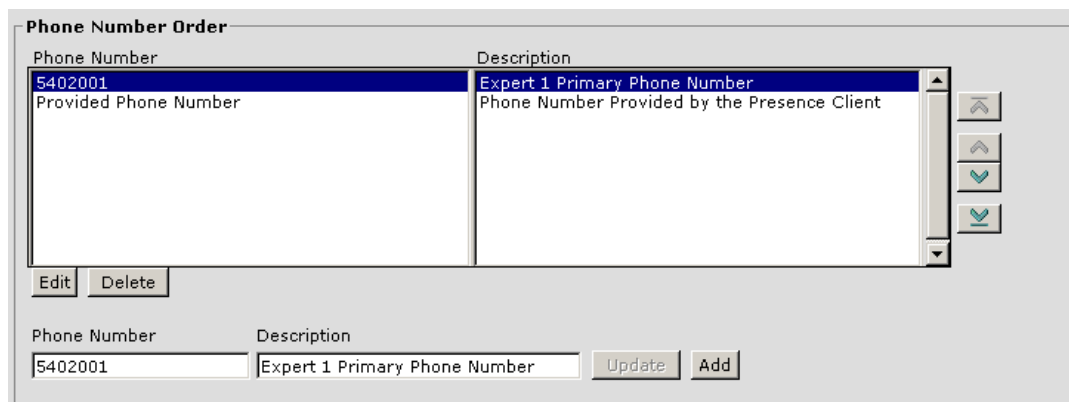
If using CUPC in the deskphone mode, you might see the following error message when the expert advisor is replying with a “Yes” that you will not see in the softphone mode. See [Figure B-161](#).

Figure B-161

```
ExpertAdvisor@ipcc.vse.cisco.com (10:59 AM): Are you available to
handle this contact?
expert 1 (10:59 AM): y
ExpertAdvisor@ipcc.vse.cisco.com (10:59 AM): Sorry, the system
could not find your phone number. Please specify a phone number
where you would like to receive the contact.
```

As a remedy, configure the Phone Numbers in the Expert Advisor page. See [Figure B-162](#).

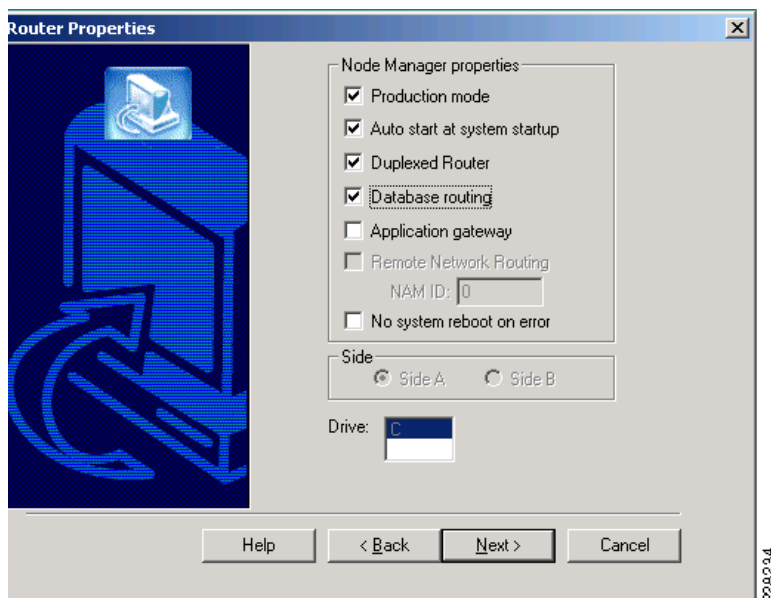
Figure B-162



## Database Lookup and Passing Data to the Expert

- Step 1** Prepare your Database/CRM. Make sure you configure a primary key in your table.
- Step 2** On the ICM Router servers execute the ICM setup utility (Run `C:\icm\bin\ICMSetup.exe`) and turn on Database Routing. See [Figure B-163](#).

Figure B-163



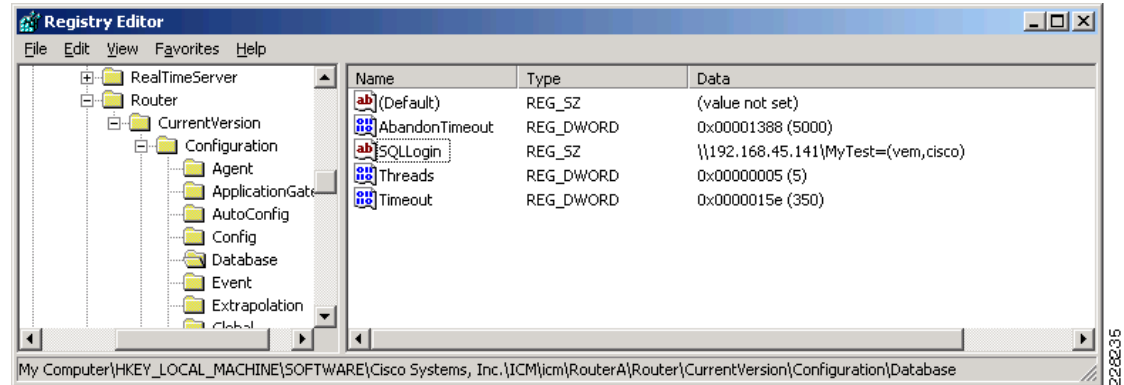
- Step 3** On the ICM Router server, open the regedit utility and edit the registry key for the Database configuration as follows:
- Locate `HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<instance>\RouterA\Router\CurrentVersion\Configuration\Database`.
  - For the `SQLLogin` key, enter the information of your database:



\\<ipaddress-or-name>\<Database\_name>=<username>, <password>)

Figure B-164.

Figure B-164

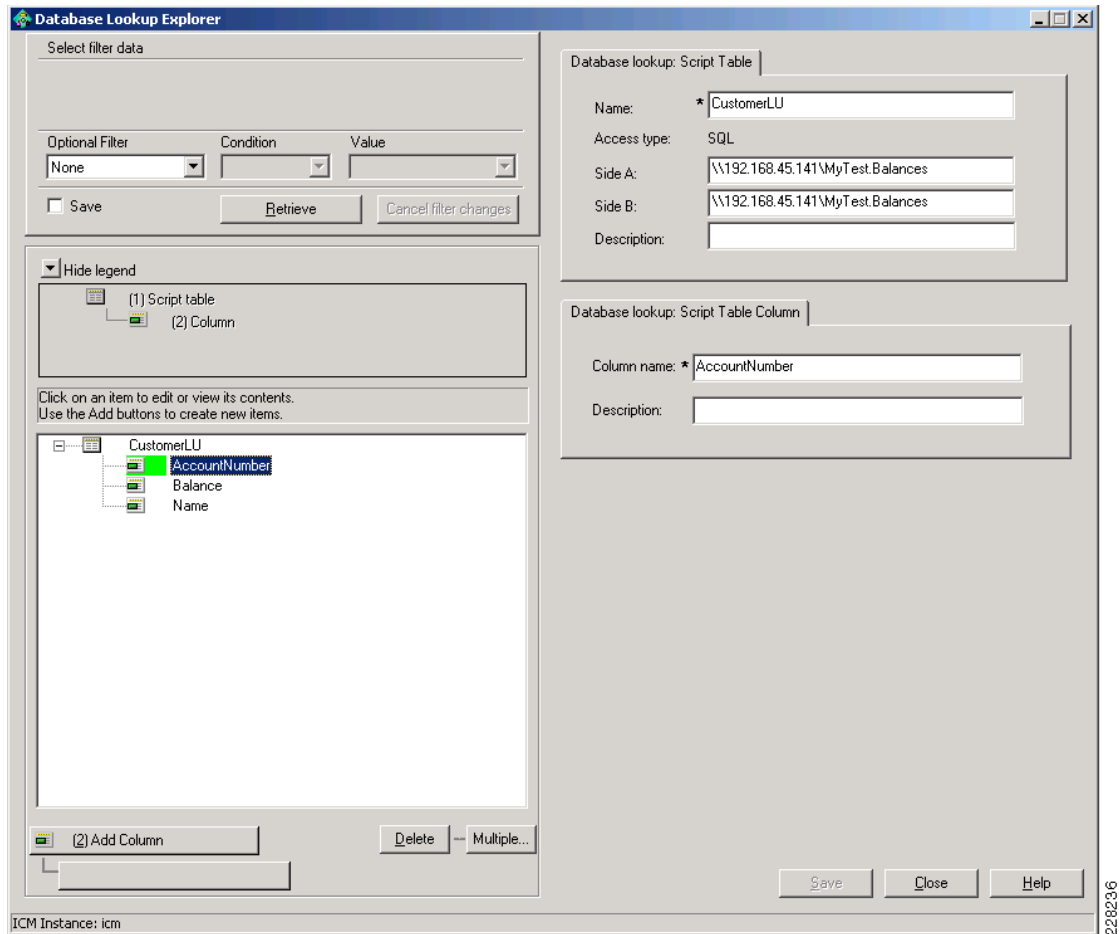


**Note**

You need to do that only on one side. This setting will be automatically replicated to the other side.

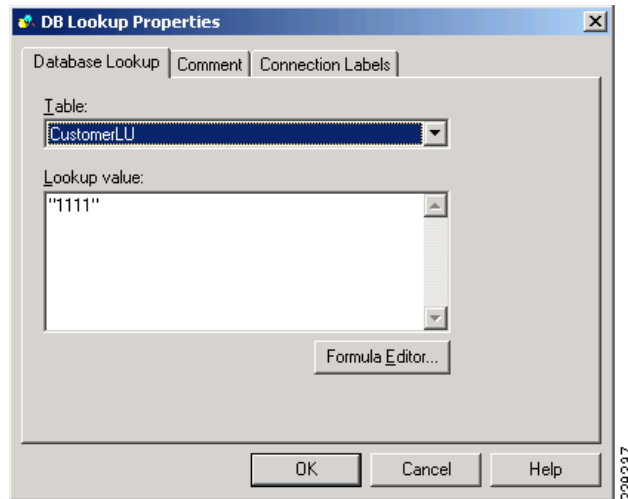
- Step 4** In ICM Configuration, open the DB Lookup Explorer.
- Step 5** Enter a name for the Script Table. For side A and B, enter the DB server information with DB name and table as: \\<IPorHostname>\<DB>.<Table>. See [Figure B-165](#).

Figure B-165



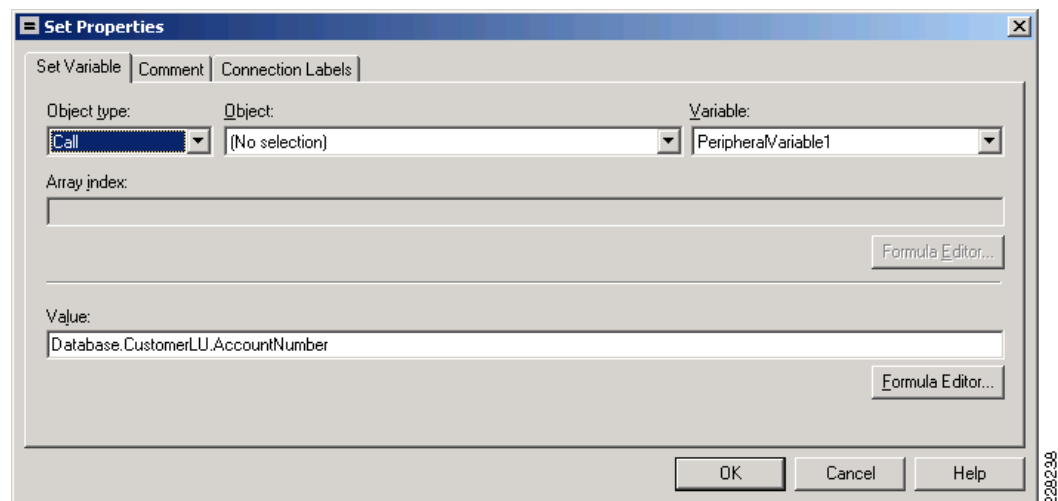
- Step 6** In the ICM script, perform add a DB Lookup step to select the row you are looking for. For example, if the account number should match “1111”, then enter the following information in the Database Lookup step. See [Figure B-166](#).

Figure B-166



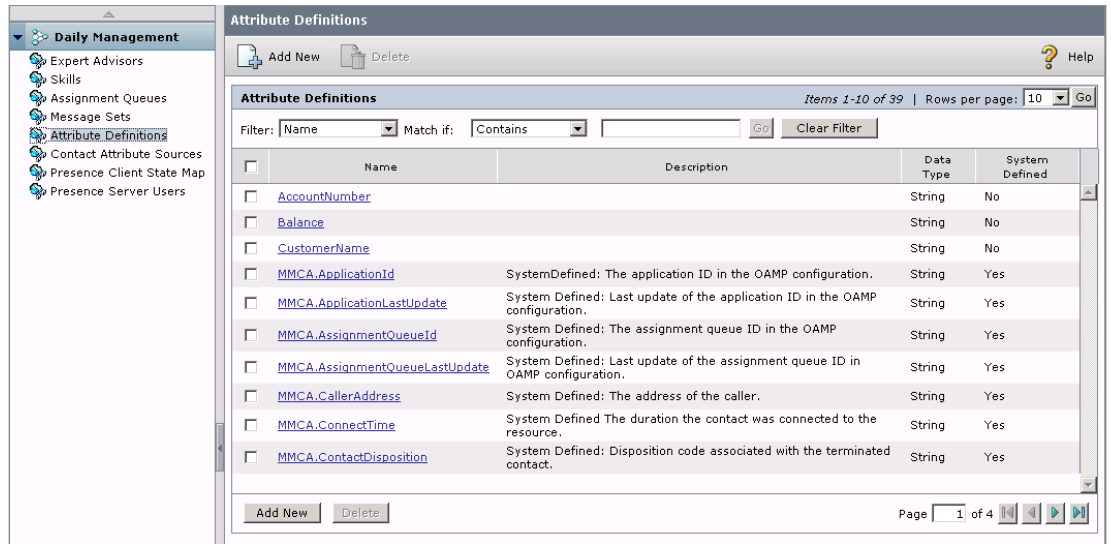
- Step 7** After a match is found other column data can be retrieved for this record. In the following example, we set the *PeripheralVariable1* to the AccountNumber column of the DB record, using the **set** step. Later on, with Expert Advisor, we will map this Peripheral Variable1 to an Expert Advisor variable, also called Expert Advisor attribute. See [Figure B-167](#).

Figure B-167



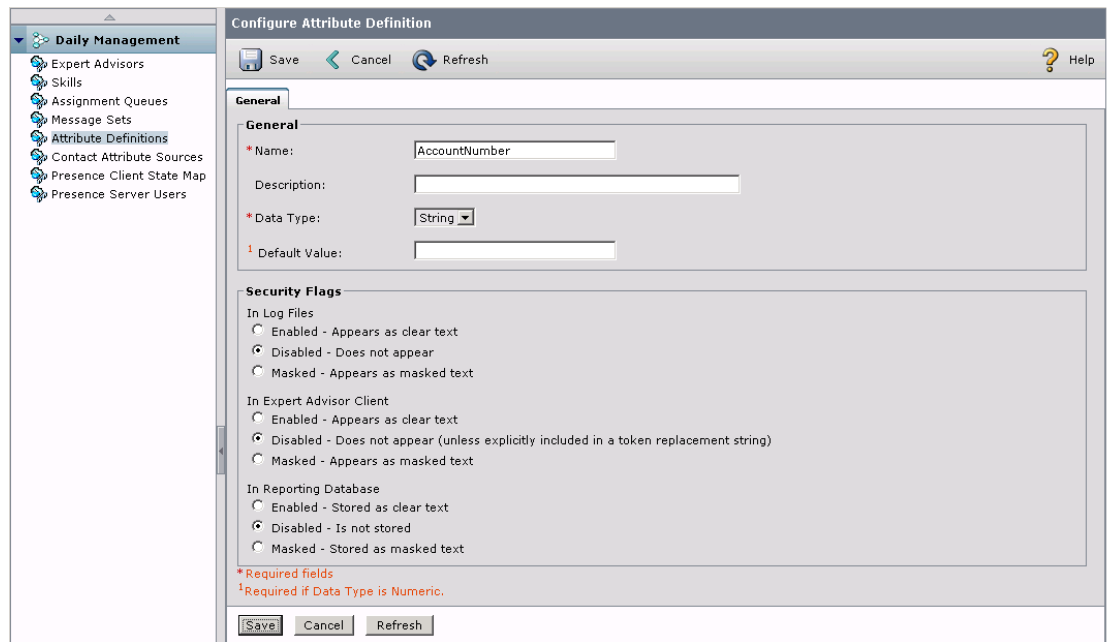
- Step 8** On Expert Advisor OAMP, if you want to display this information to the expert, create new Attribute Definitions. Go to **Daily Management**, select **Attribute Definitions**. See [Figure B-168](#).

Figure B-168



**Step 9** Add new attribute definitions. Click on **Disabled** in the **In Expert Advisor Client**. See [Figure B-169](#).

Figure B-169



**Step 10** In **Contact Attribute Sources**, map the new Attribute Definitions to Variables you use in the ICM script. See [Figure B-170](#).

Figure B-170

**Configure Contact Attribute Source**

Save Cancel Refresh Help

**General**

\* External Source: Unified ICM Call Variable

\* 1 External Name: PeripheralVariable1

Description:

\* 2 Attribute Name: AccountNumber Add/Update

\* Required fields  
 1 External Name is case sensitive only for External Source Unified ICM ECC Variable.  
 2 Added/Updated with the adjacent button.

Save Cancel Refresh

- Step 11** Modify the messages sent to the expert. Go the **Daily Management > Message Sets**. You can for example use the Clone functionality to clone the System Defined Message for English. See [Figure B-171](#).

Figure B-171

**IM Message Sets**

Add New Delete Help

Items 1-2 of 2 | Rows per page: 10 | Go

Filter: Name Match if: Contains Go Clear Filter

<input type="checkbox"/>	Name	Description	Default Locale	System Defined	Actions
<input type="checkbox"/>	<a href="#">SystemDefined</a>	System Defined Message Set for English (US)	en_US [English (United States)]	Yes	<a href="#">Clone</a>
<input type="checkbox"/>	<a href="#">VEM Custom</a>	System Defined Message Set for English (US)	en_US [English (United States)]	No	<a href="#">Clone</a>

Add New Delete Page 1 of 1

- Step 12** Edit the new message set and choose the **To Expert** tab.
- Step 13** Edit the **Contact Offer Request Notice**.
- Step 14** Edit the **Contact Offer Notice**. See [Figure B-172](#).

Figure B-172

**Edit Message Set**

Save Refresh Cancel Help

**Edit Message Set**

\* Name: VEM Custom  
 Description: System Defined Message Set for English (US)  
 Default Locale: English (United States) (en\_US)

**Configure Messages**

\* Name: VEM changes - English  
 Locale: English (United States) (en\_US)  
 Format: HTML

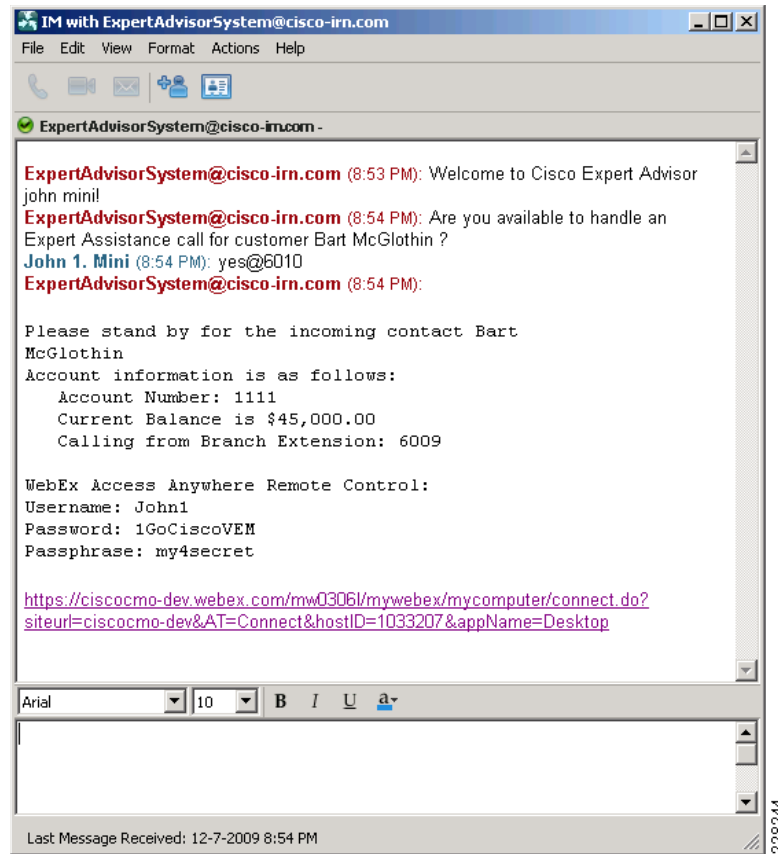
From Expert To Expert

\* Login Greeting: Welcome to Cisco Expert Advisor %NCD:UserName%! Edit  
 \* Contact Offer Request Notice: Are you available to handle an Expert Assistance call for Edit  
 \* Contact: Cisco Expert Advisor -- Webpage Dialog Edit  
 \* Contact: Configure Messages Edit  
 \* Contact: Configure Messages in the text area and click Save. Edit  
 \* Unexpected: Are you available to handle an Expert Assistance call for customer % Edit  
 \* Device N: CD:CustomerName%? Edit  
 \* Contact: Edit  
 \* Select Re: Edit  
 \* Help: Edit  
 \* System f: Edit  
 \* System I: Edit  
 \* System c: Edit

Save Close

The dialogue with the Expert will then look like to what is shown in [Figure B-173](#).

Figure B-173



For more information on DB Lookup, refer to the *Scripting and Media Routing Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* and the *Administration and Configuration Guide for Cisco Unified Expert Advisor 7.6(1)* at the following URLs:

[http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products\\_user\\_guide\\_list.html](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/products_user_guide_list.html)

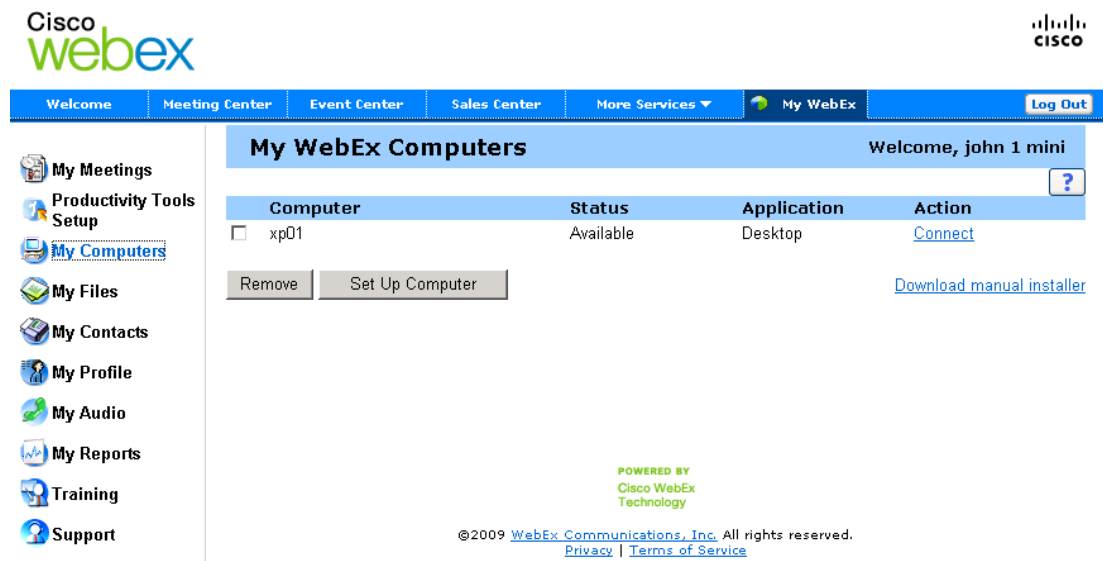
[http://www.cisco.biz/en/US/products/ps9675/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.biz/en/US/products/ps9675/prod_maintenance_guides_list.html)

## WebEx Access Anywhere

WebEx Access Anywhere is a simple method for an Agent to control the desktop and system that the customer used when contacting the agent from within the enterprise. The WebEx Access Anywhere service uses an agent installed on the remote system to allow connection and control from an Expert Agent without the customer having to connect to, navigate or share the system they are using via services such as WebEx meeting or Cisco Meeting Place sessions.

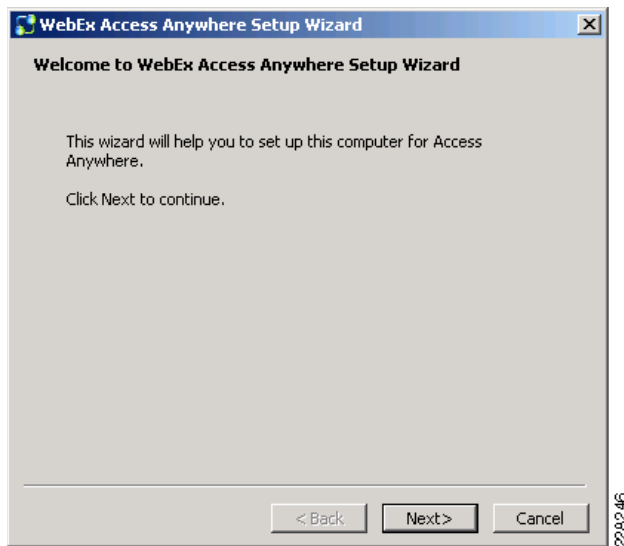
- 
- Step 1** To install the WebEx Access Anywhere agents on a system, login to the WebEx account. Select **My WebEx** from the tool menu and then click on **My Computers**. See [Figure B-174](#).

Figure B-174



**Step 2** Click on **Set up Computer**. Accept the Security Warning for ActiveX. See Figure B-175.

Figure B-175

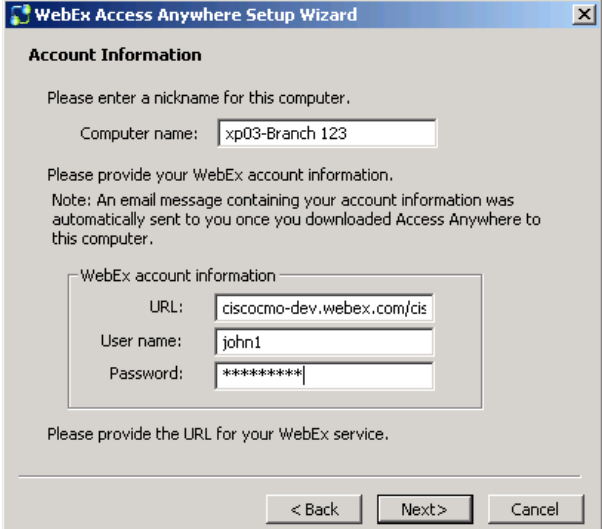


**Step 3** Click **Next**.

**Step 4** Enter the Computer name and WebEx Account Info and click **Next**. See Figure B-176.



Figure B-176



**WebEx Access Anywhere Setup Wizard**

**Account Information**

Please enter a nickname for this computer.

Computer name:

Please provide your WebEx account information.

Note: An email message containing your account information was automatically sent to you once you downloaded Access Anywhere to this computer.

WebEx account information

URL:

User name:

Password:

Please provide the URL for your WebEx service.

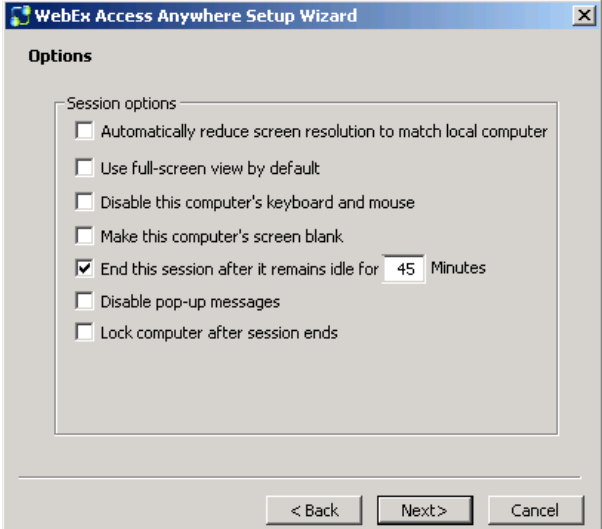
< Back   Next >   Cancel

228247

**Step 5** Click **Next**.

**Step 6** For Virtual Expert Kiosks in an Enterprise Branch configure the session options to enable both the Expert and the customer to access and control the System at the same time. Click **Next**. See [Figure B-177](#).

Figure B-177



**WebEx Access Anywhere Setup Wizard**

**Options**

Session options

☐ Automatically reduce screen resolution to match local computer

☐ Use full-screen view by default

☐ Disable this computer's keyboard and mouse

☐ Make this computer's screen blank

☒ End this session after it remains idle for  Minutes

☐ Disable pop-up messages

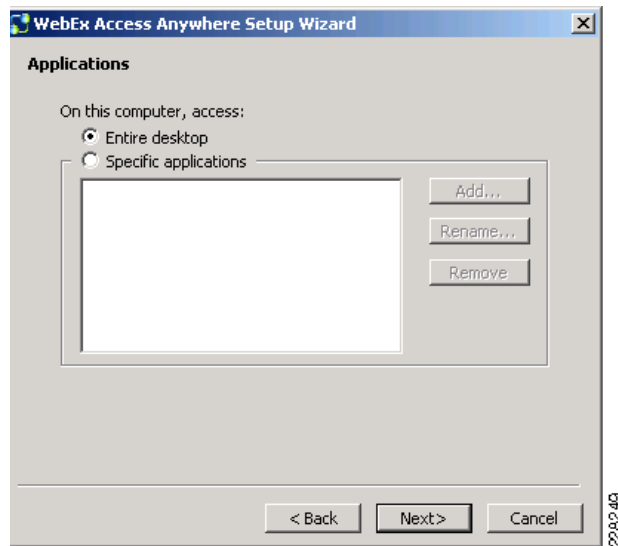
☐ Lock computer after session ends

< Back   Next >   Cancel

228249

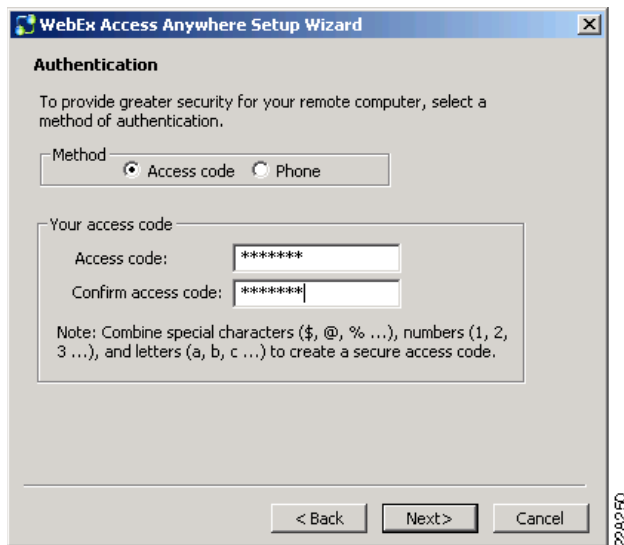
**Step 7** Configure access for the entire Desktop and click **Next**. See [Figure B-178](#).

Figure B-178

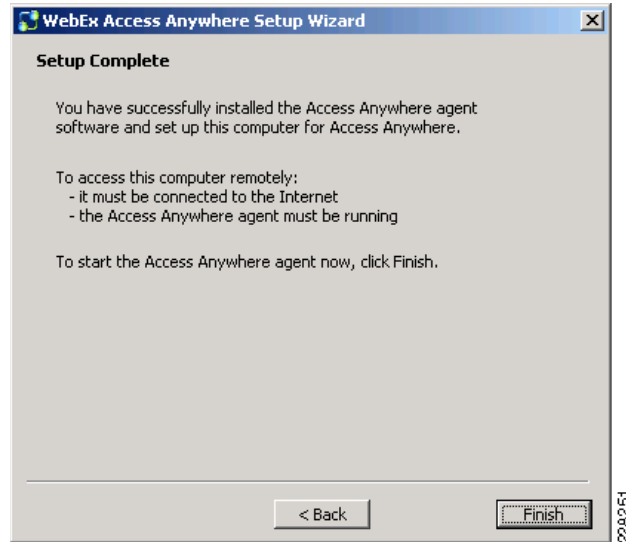


**Step 8** Set the Access code for this system and click **Next**. [Figure B-179](#).

Figure B-179



**Step 9** With setup completed, click **Finish**. See [Figure B-180](#).

**Figure B-180**

- Step 10** The newly added system will be listed in the My WebEx Computer table and the WebEx Access Anywhere agent will be running in the System Task Tray waiting for a connection. See [Figure B-181](#).

Figure B-181

