



## Install Guide

# Cisco Unified CRM Connector

## Introduction

The Cisco® Unified CRM Connector is part of the Cisco Unified Communications family of products. The Cisco Unified CRM Connector integrates Cisco IP-based communications with the Microsoft Dynamics Customer Relationship Management 3.0 (Microsoft CRM) application to provide small and medium-sized business (SMB) and enterprise customers with an easy-to-use and more complete CRM solution. The Cisco Unified CRM Connector quickly and easily integrates Cisco Unified Communications solutions with Microsoft CRM at the desktop, without requiring additional hardware. In addition, the Microsoft CRM client uses Microsoft Outlook or Internet Explorer as the primary client for managing tasks and contacts.

The Cisco Unified CRM Connector is a client-server-based application that is highly configurable and supports the following primary features in Cisco IP telephony environments that are using Microsoft CRM:

- Automatic detection and screen-pop searches of the CRM database for both incoming and outgoing phone calls
- Automatic creation of phone call activity records for incoming and outgoing calls with call duration tracking
- Click-to-dial from the Microsoft CRM user interface
- Multisite configuration capabilities with geographically correct dialing configurations per user
- Easily open associated Microsoft CRM customer service cases
- Easy-to-use search system, allowing the user to search by name and to access contact records and associated support cases
- Integration with Cisco Unified CallManager, Cisco Unified CallManager Express, and Cisco Unified Contact Center Express

These features allow CRM users to provide improved service by personalizing their interaction with callers. It also helps to enforce administrative policy for creating phone call activity records.

Cisco Unified CRM Connector was the first IP Communications application to receive certification from Microsoft, integrating a best-in-class IP-based communications solution with a leading CRM application for SMBs. The Cisco Unified CRM Connector for Cisco Unified CallManager Express, Cisco Unified CallManager, and Cisco Unified Contact Center Express is available at no additional cost as a resource for qualified Cisco partners.

## Installation of Cisco Unified CRM Connector Server

### About the Installation Process

- The installation process is supported by Virtual Network Computing (VNC) and other remote control desktop software, but is not supported by Terminal Services.
- If you are upgrading from a previous version of the Cisco Unified CRM Connector (version 2.x), you must uninstall the old version before installing this version. Future versions will have upgrade capabilities.
- If you are integrating with Cisco Unified Contact Center Express, you must follow the Cisco Unified CallManager installation steps, and then complete the “Integrating with Cisco Unified Contact Center Express” steps to complete the configuration process.

- Cisco Telephony Application Programming Interface (TAPI) software must be installed, configured, and working properly before proceeding with the installation of the Cisco Unified CRM Connector components.
- The Microsoft .NET Framework must be installed before proceeding with the Cisco Unified CRM Connector installation.

### **The Cisco Unified CRM Connector Server Component**

The Cisco Unified CRM Connector server component should be installed on the Microsoft CRM server itself. To allow for maximum ease of installation during the client phase, the Cisco Unified CRM Connector server component and service should be installed and operational before clients are installed, since they will attempt to contact the Unified CRM Connector server component during their own installation.

**Note:** The Cisco TAPI client software must be configured properly and running before proceeding with the installation of the Cisco Unified CRM Connector software. You must verify that you can monitor and control the end-user phone extension associated with the client PC. Failure to do so will result in problems during the Cisco Unified CRM Connector installation. For more information about installing and configuring the Cisco TAPI software, refer to your Cisco Unified CallManager support documentation.

#### Software Installation Order

1. Cisco Unified CRM Connector server component (installed on Microsoft CRM server)
2. Cisco Unified CRM Connector client component (installed on all client PCs using the Cisco Unified CRM Connector)

### **Installing the Cisco Unified CRM Connector Server Component**

1. To install the Cisco Unified CRM Connector Server Service, first make sure you are logged in as the administrator. Then, locate and double-click the setup.exe file or .msi for the CRM Connector server component. You will be presented with a standard set of installation dialogs. Click “Next” to proceed with installation (Figure 1).

**Figure 1**

Cisco Unified CRM Connector Installation Screen



2. Click "I agree" to accept the licensing agreement and click "Next" (Figure 2).

**Figure 2**

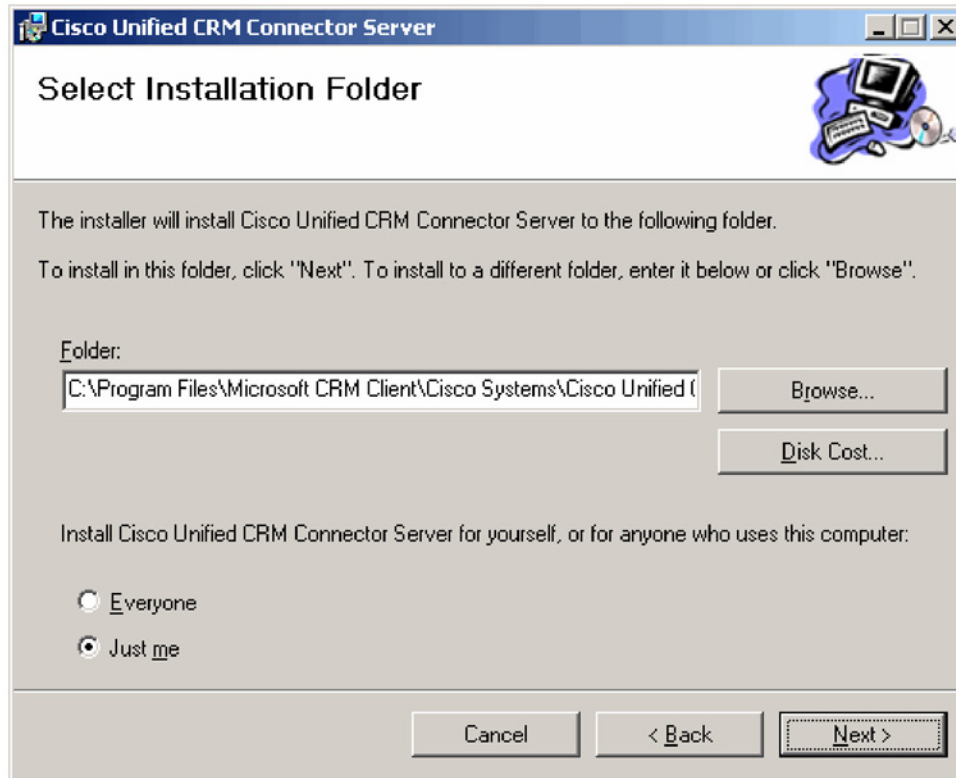
Cisco Unified CRM Connector License Screen



3. Select the installation folder and click "Next" (Figure 3). The default folder is recommended.

**Figure 3**

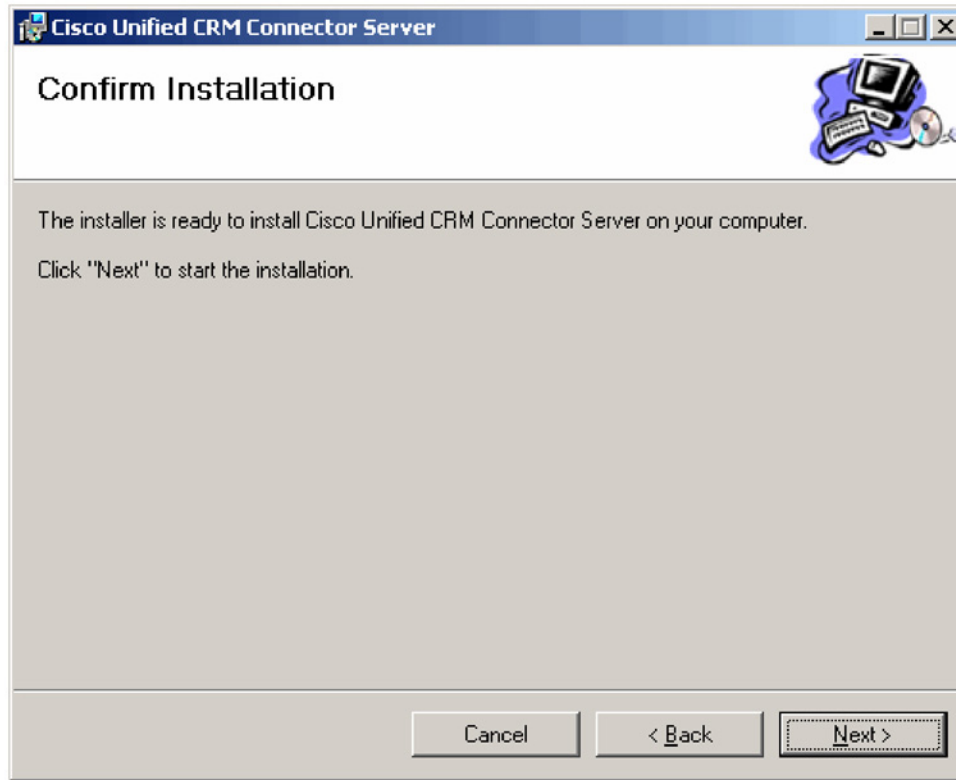
Cisco Unified CRM Connector – Selecting Installation Folder



4. Confirm the installation by clicking “Next” (Figure 4).

**Figure 4**

Cisco Unified CRM Connector – Confirm Installation

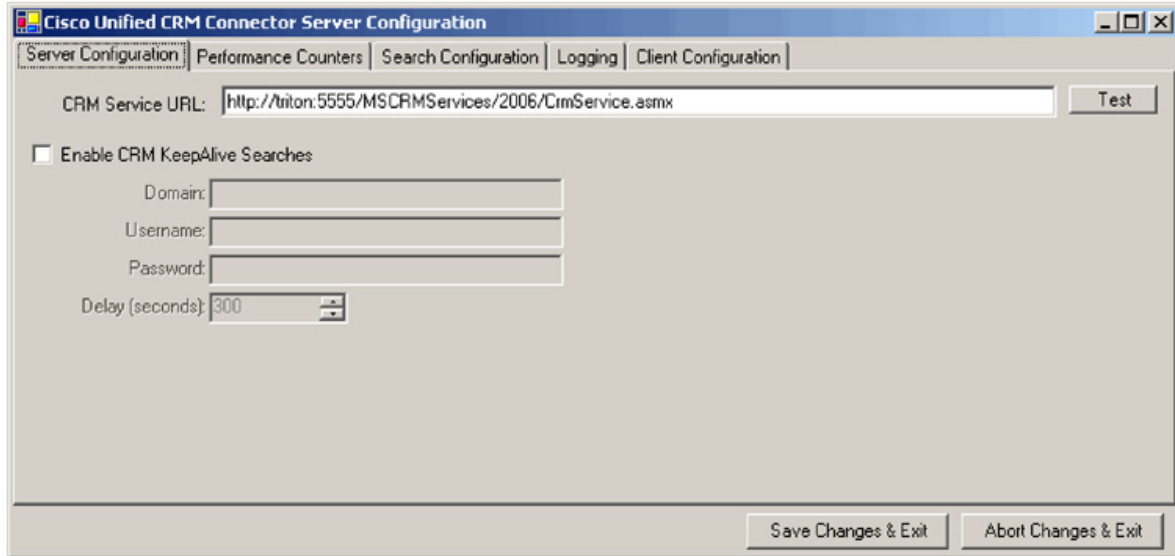


5. After the files are copied, the Server Configuration Wizard will appear.

### Server Configuration Tab

Figure 5 shows how this configuration dialog might appear after configuration, prior to configuring the phone number processors. In this example, "triton" is the Microsoft CRM server name and it runs on port 5555. Be sure to include the rest of the path that you see in the example (that is, /MSCRMServices/2006/CrmService.asmx).

**Figure 5**  
Cisco Unified CRM Connector Server Configuration Tab



When you click the “Test” button next to the CRM Services URL, you may receive one of several responses. Figure 6 shows what you want to see – “The URL is Valid” means that the C4 Server Service was successfully able to contact the Microsoft CRM Web Services.

**Figure 6**  
URL is Valid Message



Figure 7 shows a validation error. In this instance, the URL most likely is not the correct location to the CRM Web Services. Please verify the URL and try again.

**Figure 7**

Cisco Unified CRM Connector – Validation Error Message

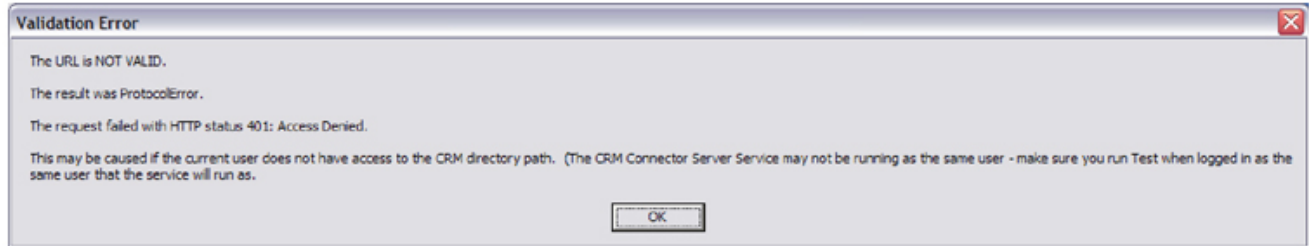
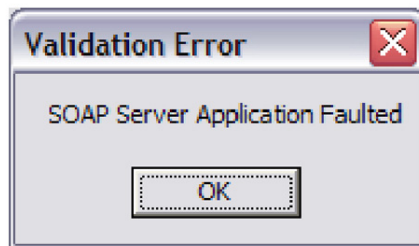


Figure 8 shows a Simple Object Access Protocol (SOAP) error. This may indicate that the user installing the C4 Server Service does not have access to Microsoft CRM.

**Figure 8**

Cisco Unified CRM Connector – Validation Error



### Enable CRM Keepalives

This feature is used to ensure that the Microsoft CRM server is continuously polled so that it does not drop objects from its cache, which could negatively affect a demonstration environment. You will not need to use this feature in a live deployment or production environment.

- a. Enable CRM Keepalives: Check or uncheck this box to enable or disable keepalive searches.
- b. Domain: The user domain to use when authenticating for performing keepalive searches.
- c. Username: The username to use when authenticating for performing keepalive searches.
- d. Password: The user password to use when authenticating for performing keepalive searches.
- e. Delay: The delay in seconds to wait after any search is performed before initiating a keepalive search.

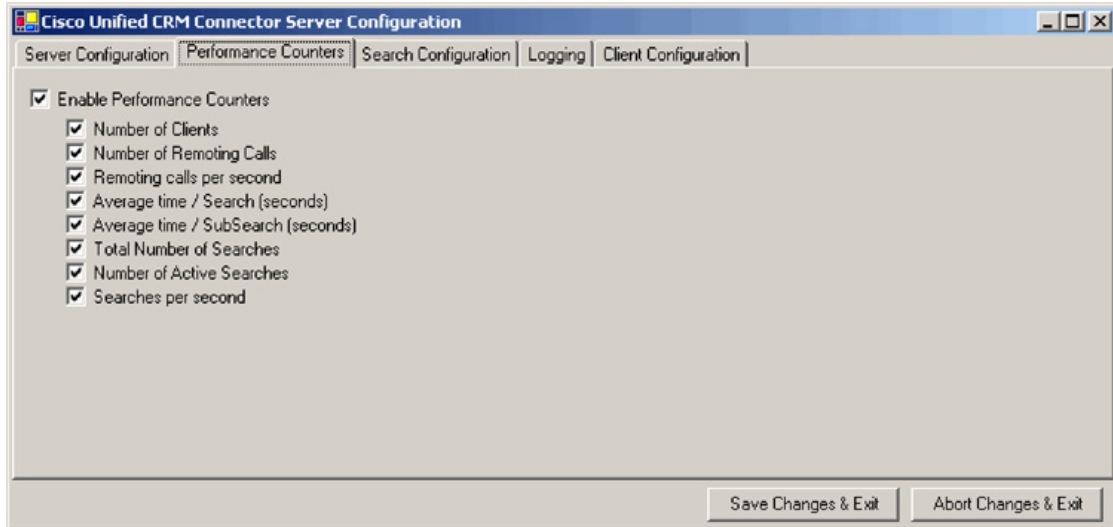
### Performance Counters Tab

Check or uncheck the “Enable Performance Counters” box to enable or disable performance monitor counters (Figure 9). To view these objects, add “C4.Server” as a counter within the Windows Performance Monitor, and select the objects you wish to monitor.



**Figure 9**

Cisco Unified CRM Connector – Performance Counter Screen



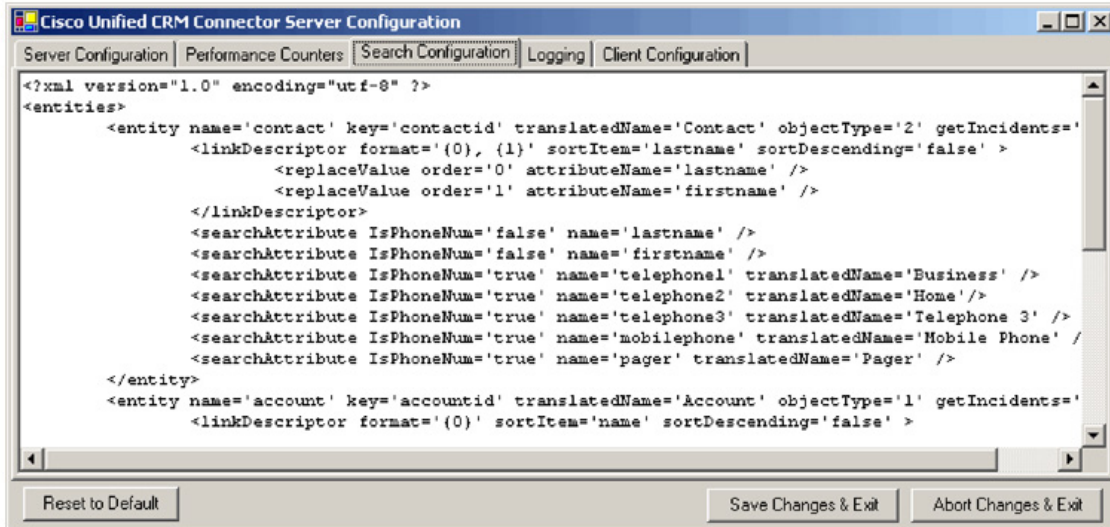
- a. Number of Clients: The number of clients that are currently connected.
- b. Number of Remoting Calls: The total number of client-initiated server requests.
- c. Remoting calls per second: The average number of client-initiated requests per second.
- d. Average time/Search: The average time in seconds to complete a full search.
- e. Average time/SubSearch: The average time in seconds to complete a search of any particular entity.
- f. Total Number of Searches: The total number of searches that have been performed.
- g. Number of Active Searches: The number of searches that are currently executing.
- h. Searches per second: The average number of searches per second.

### **Search Configuration Tab**

Figure 10 shows the Search Configuration tab. The Search Configuration tab displays the entities and fields within Microsoft CRM that the Cisco Unified CRM Connector will search in order to match the Caller ID or name to customer record. It is not necessary to manipulate this file for initial program usage.

**Figure 10**

Cisco Unified CRM Connector – Search Configuration Tab



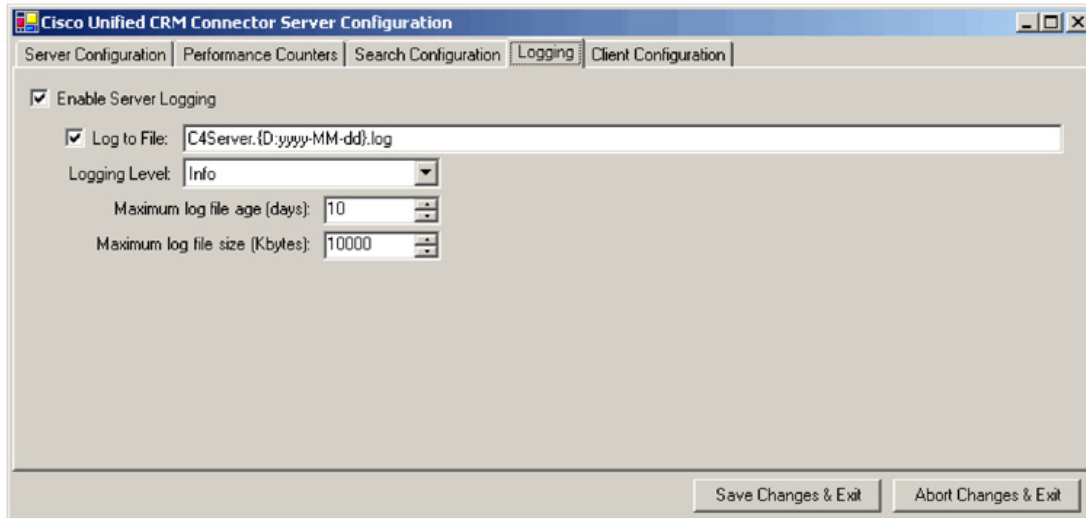
## Logging Tab

Figure 11 shows the Logging Tab.

1. Enable Server Logging: Check or uncheck this box to enable or disable logging.
2. Log to File: To log to a filename, check this box and type the filename to log to (see also: Log filenames).
3. Logging Level: Sets the verbosity of the log file output.
4. Maximum log file age: The maximum age in days of old (existing) log files. You must use dynamic filenames.
5. Maximum log file size: The maximum approximate size in Kbytes of any single log file.

**Figure 11**

Cisco Unified CRM Connector – Logging Tab



### Client Configuration Tab

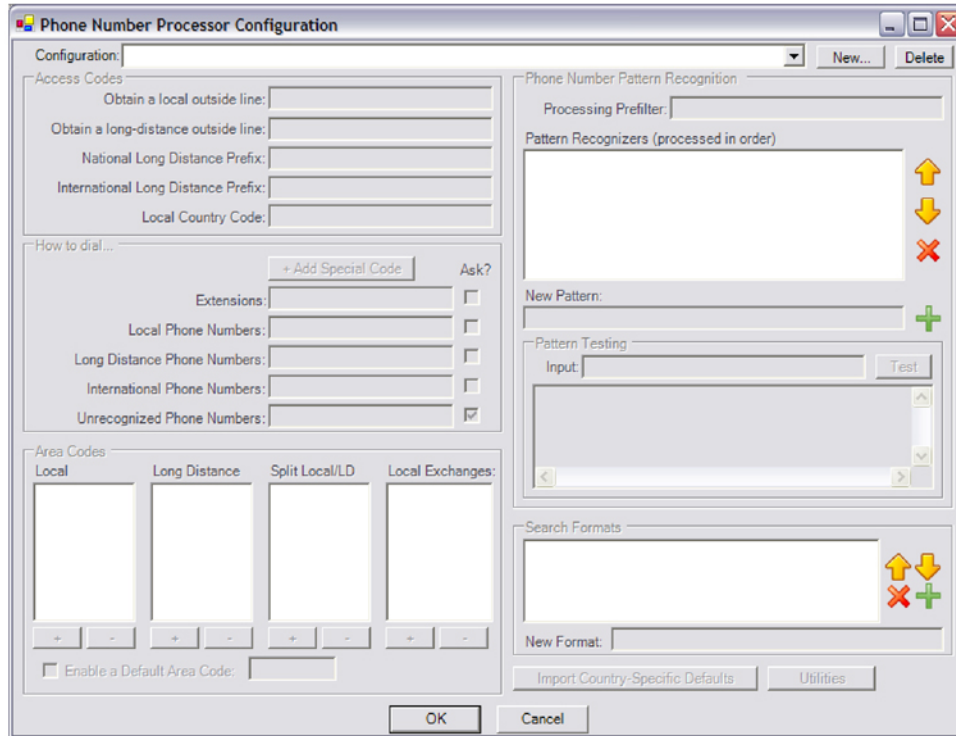
1. Ignore inbound/outbound phone numbers: The Ignore List tab allows you to specify specific phone numbers that the Unified CRM Connector client should ignore when processing inbound and outbound phone numbers. The first four boxes allow you to specify numbers to ignore when the phone number either begins with, ends with, is exactly, or contains the specified digit strings. In these four boxes, only digits are allowed. The fifth box, “Custom/Advanced”, allows you to specify regular expressions of phone number digit strings to ignore.

2. Edit Phone Number Processor Configs: Click this button to configure the phone number processors.

3. Default PNP Config: The default phone number processor configuration to present to clients with unspecified or invalid phone number processor configurations.

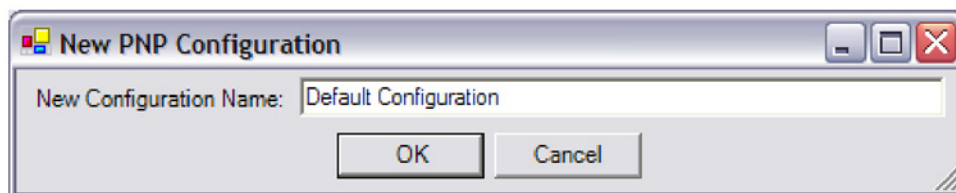
When you first configure the Cisco Unified CRM Connector server component and enter the Phone Number Processor Configuration dialog, you will see a blank configuration as shown in Figure 12.

**Figure 12**  
Phone Number Processor Configuration



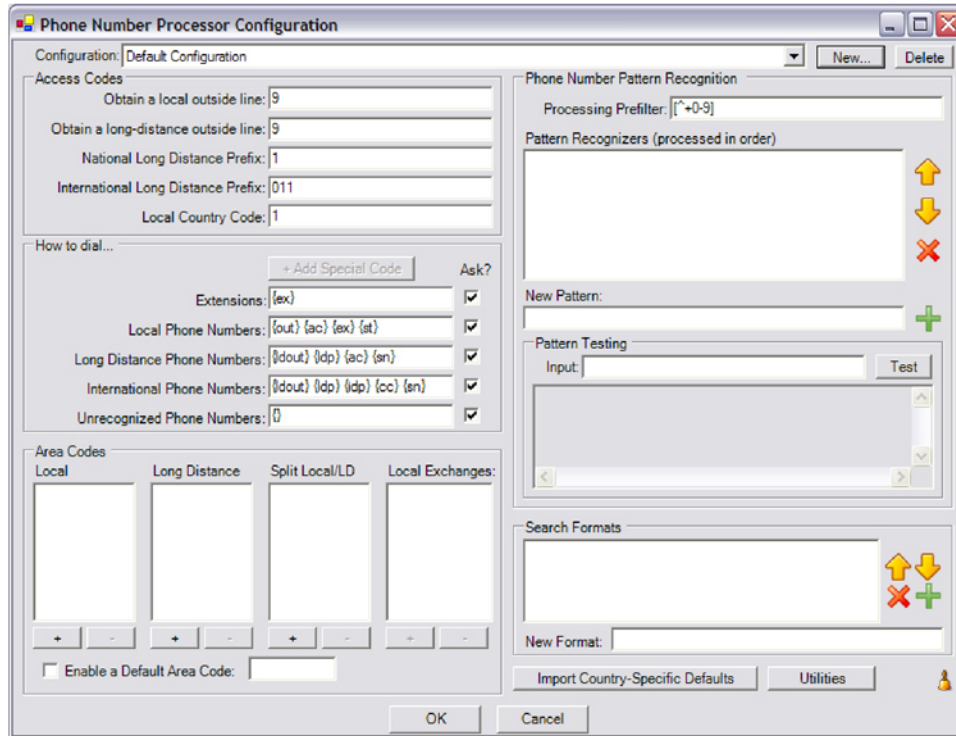
At first, the actual configuration area is disabled, because you must first create a new phone number processor configuration. To begin a new configuration, click “New...” and give the configuration a name (Figure 13). Each client can be configured to use one of the multiple configurations that you have defined. Each additional configuration can be defined as a site, for use with branch or remote offices that have a different area code than the main business location where the Microsoft CRM server is located.

**Figure 13**  
New PNP Configuration Screen



Some defaults will be loaded for you (Figure 14). These are based on the U.S. 10-digit dialing rules.

**Figure 14**  
Phone Number Processor Configuration

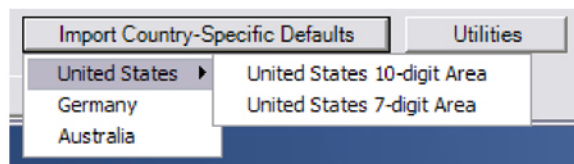


At this point, you should import some defaults that are appropriate to your area. The currently supported predefined configurations are:

1. U.S. 10-digit dialing
2. U.S. 7-digit dialing
3. Germany
4. Australia

All of these predefined configurations will require additional adjustment for your specific area. To import one of these configurations, click “Import Country-Specific Defaults” near the bottom of the dialog window, and select the configuration you would like to use. Figure 15 shows the lower right section of the Phone Number Processor Configuration screen in greater detail.

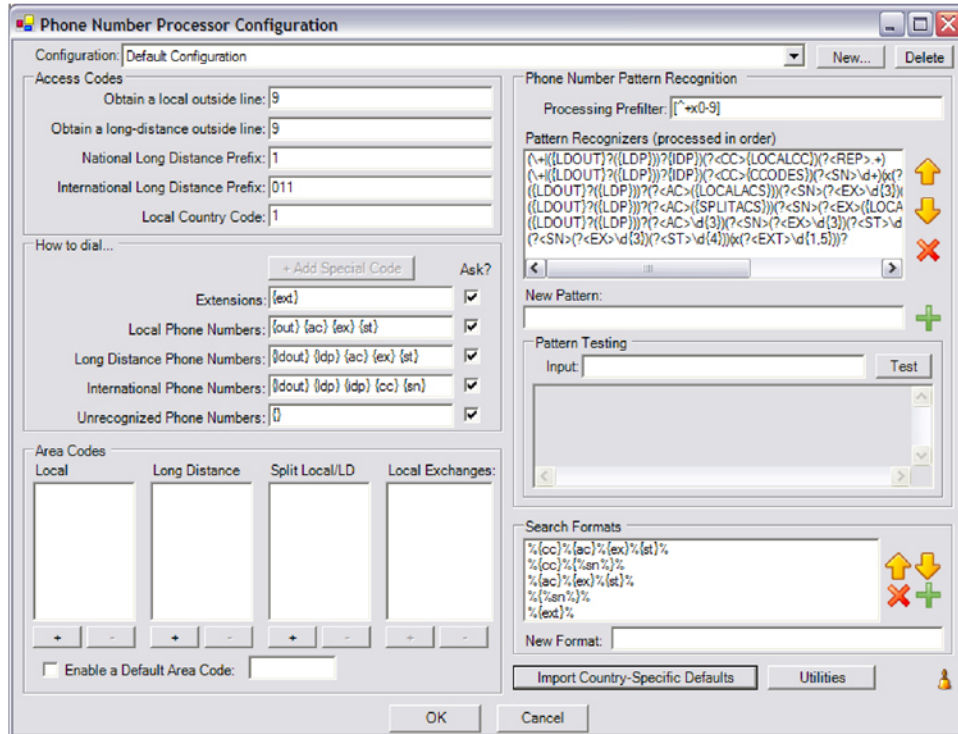
**Figure 15**  
Dial Plan Templates



**Note:** If you do this with a configuration already defined, it will be overwritten, and you will lose any custom dialing rules (pattern recognizers and search formats).

Figure 16 shows a sample completed configuration.

**Figure 16**  
Phone Number Processor Configuration



The values that you can configure in the PNP configuration dialog are listed in Table 1.

**Table 1.** PNP Configuration Dialog

| Section             | Configurable Values  |
|---------------------|--|
| <b>Access Codes</b> | <p>There are five access codes that can be defined. Their actual use is dictated by the values provided in the “How to dial...” section, but their general use is described below. Each access code has a mnemonic associated with it, which is shown in curly braces.</p> <ol style="list-style-type: none"> <li>1. <i>Obtain a local outside line</i> {out}: The digit string that is typically dialed before placing local calls.</li> <li>2. <i>Obtain a long-distance outside line</i> {ldout}: This digit string will be the digit string that is typically dialed before placing long-distance (and international) calls.</li> <li>3. <i>National Long Distance Prefix</i> {ldp}: The digit string that is typically dialed ahead of the area code when placing long-distance (and international) calls.</li> <li>4. <i>International Long Distance Prefix</i> {idp}: The digit string that is typically dialed to indicate that the call is international.</li> <li>5. <i>Local Country Code</i> {localcc}: The digit string that represents the country the user is located in when being dialed from another country.</li> </ol> |

| Section                                 | Configurable Values   |
|---|---|
| <b>How to dial...</b>                   | <p>Each box in this section defines how to dial a phone number once it has been broken into parts (country code, area code, etc.). Typically, the values provided in each style phone number field will be various combinations of codes that are built into the program, although you could also provide numbers directly in each box. The codes that are available are the same codes that are shown in the “Access Codes” and “Phone Number Pattern Recognition” sections, plus one special code, “0”, which means all digits.</p> <p>The “Ask?” checkbox next to each field tells the client whether it should still ask the user to verify the phone number before dialing when using click-to-dial, and when there is only one phone number for the requested click-to-dial contact.</p>  |
| <b>Area Codes</b>                       | <p>The values provided in these boxes are used by the “Phone Number Pattern Recognition” section to try to determine the accurate parts of each phone number, and to determine the style (local, long distance, etc.) of the phone number being processed. The exact manner in which these area codes are used is dictated by the “Phone Number Pattern Recognition” section, but the intended meaning of values in each box are:</p> <ol style="list-style-type: none"> <li>1. <i>Local</i>: Values placed in this box are considered local area codes.</li> <li>2. <i>Long Distance</i>: Values placed in this box are considered long-distance area codes.</li> <li>3. <i>Split Local/LD</i>: Values placed in this box are area codes in which some numbers are local and others are long distance.</li> <li>4. <i>Local Exchanges</i>: For each area code in the “Split Local/LD” box, values placed in the box are the local exchanges for that area code. The values in this box are maintained individually for each area code in the “Split Local/LD” box.</li> </ol> <p>The “Enable a Default Area Code” checkbox allows the system to assign the user’s local area code when it is not provided in the contact’s record. If the area code is provided in the CRM contact record, then this field is not used during processing.</p>  |
| <b>Phone Number Pattern Recognition</b> | <p>This area is what really allows the client to pick out the parts of the phone number for efficient CRM searching and for accurate no-touch click-to-dial capability. It uses <a href="#">Microsoft .NET Regular Expressions</a> to identify each part of the phone number. The patterns are used during both incoming and outgoing phone call detection for efficient CRM searches, as well as click-to-dial.</p> <p>First, the phone number is filtered according to the prefilter. Anything that matches the prefilter is removed from the digit string being considered. Then, the digit string is tested against each pattern in order until a match is found. Each pattern should result in at least one named match for the following values:</p> <ol style="list-style-type: none"> <li>1. CC: A country code</li> <li>2. AC: An area code</li> <li>3. EX: An exchange</li> <li>4. ST: A station</li> <li>5. EXT: An extension</li> <li>6. SN: A generic “subscriber number”</li> </ol> <p><b>Note:</b> The subscriber number may or may not follow the typical definition of a subscriber number; this value is more of a generic container.</p> <p>Once a pattern is found that matches the digit string, and it is broken out into its parts, one of two things occurs:</p> <ol style="list-style-type: none"> <li>1. If the number is being processed for click-to-dial, the style of the phone number is determined by specific rules. The phone number is then dialed as specified in the “How to dial...” section.</li> <li>2. If the number is being processed for searching Cisco Unified CRM Connector, it is formatted and searched according to the patterns specified in the “Search Formats” area.</li> </ol> |

**Section****Configurable Values****Search Formats**

Search formats allows the administrator to maximize efficiency and accuracy when searching Cisco Unified CRM Connector. After a phone number is processed by the pattern recognizers, the list of search formats is processed in order until one is found in which all components of the search format can be provided. Each search format component is a code that matches the named match values that are detected by the pattern recognizers. Each matching value is then replaced with that portion of the phone number. There are two formats for each search component, using AC as demonstration:

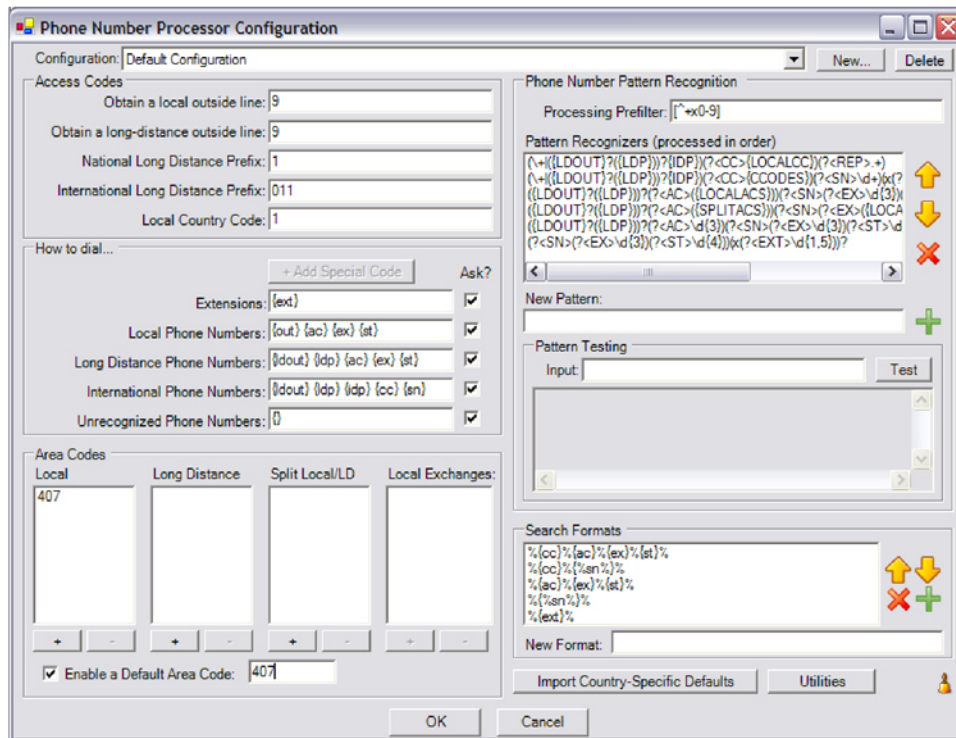
1. {ac}: Simply replaces the "{ac}" with the area code detected from the phone number.
2. {%ac%}: Replaces the "{%ac%}" with the area code detected from the phone number with "%" symbols interspaced between each digit.

The difference between the two formats is that the first format provides the most accurate searching, but in some cases, may not find the correct records if there are other characters interspersed in the text stored in Cisco Unified CRM Connector. Normally this will not occur if Cisco Unified CRM Connector users are diligent about how they enter phone numbers into the Cisco Unified CRM Connector system. When other characters are interspersed in the text in Cisco Unified CRM Connector, the "{%ac%}" format can help because it will still catch those values, but will likely also produce some results that are not true matches.

Figure 17 shows what a basic configuration of the phone number processor configuration should look like.

**Figure 17**

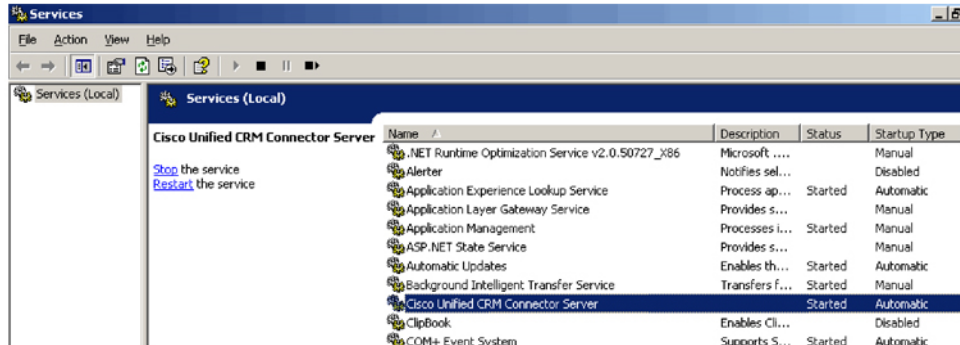
Phone Number Processor Configuration



After the configuration is complete, click "OK." Then, click "OK" to finish the C4Server installation program. The Cisco Unified CRM Connector Server Service is now installed, and will automatically be started (Figure 18).

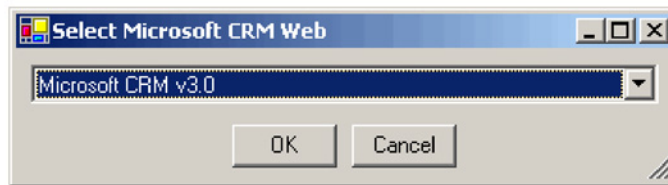


**Figure 18**  
Windows Services



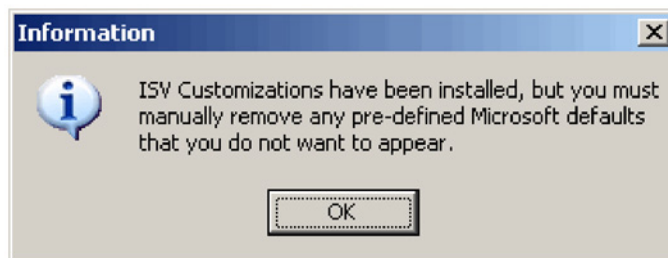
Next, the installation of the Cisco Unified CRM Connector server component prompts you to choose which Website to install the Independent Software Vendor (ISV) customizations into. Select the Microsoft CRM 3.0 Website from the pull-down menu (Figure 19).

**Figure 19**  
Selecting the CRM Web



After selecting the Microsoft CRM Website, the installer displays a notification message, which advises you that the ISV customizations have been installed but you must manually remove the default customizations. Otherwise, you may receive unwanted buttons in the Cisco Unified CRM Connector GUI (that is, the “Test” button).

**Figure 20**  
ISV Customization Message



You are now finished with installation of the Cisco Unified CRM Connector server components. Proceed to the Cisco Unified CRM Connector client installation instructions.

## Installation of Cisco Unified CRM Connector Client

### Prerequisites

As mentioned earlier in this document, the following software must be installed for proper functioning of the Cisco Unified CRM Connector client:

- One of:
  - Cisco Unified CallManager TAPI Client (if integrating with Cisco Unified CallManager, with or without Cisco Unified Contact Center Express integration).
  - Cisco Unified CallManager Express IOSTSP Client (if integrating with Cisco Unified CallManager Express). You can obtain the latest version of this file from the Cisco.com software center downloads for Cisco Unified CallManager Express.
- Microsoft .NET Framework v1.1

### Installation of the Client

To install the Cisco Unified CRM Connector client, first ensure that you are logged on as a user with administrative privileges. Also, for maximum ease of configuration, the Cisco Unified CRM Connector Server Service should be installed and operating before clients are installed or configured, although this is not strictly necessary. In addition, the TAPI client software appropriate for the integration method being used should be installed, configured, and properly functioning.

To begin the installation of the client, locate and double-click the setup.exe or \*.msi setup file associated with the Cisco Unified CRM Connector client component. You will then be presented with a standard set of installation dialogs.

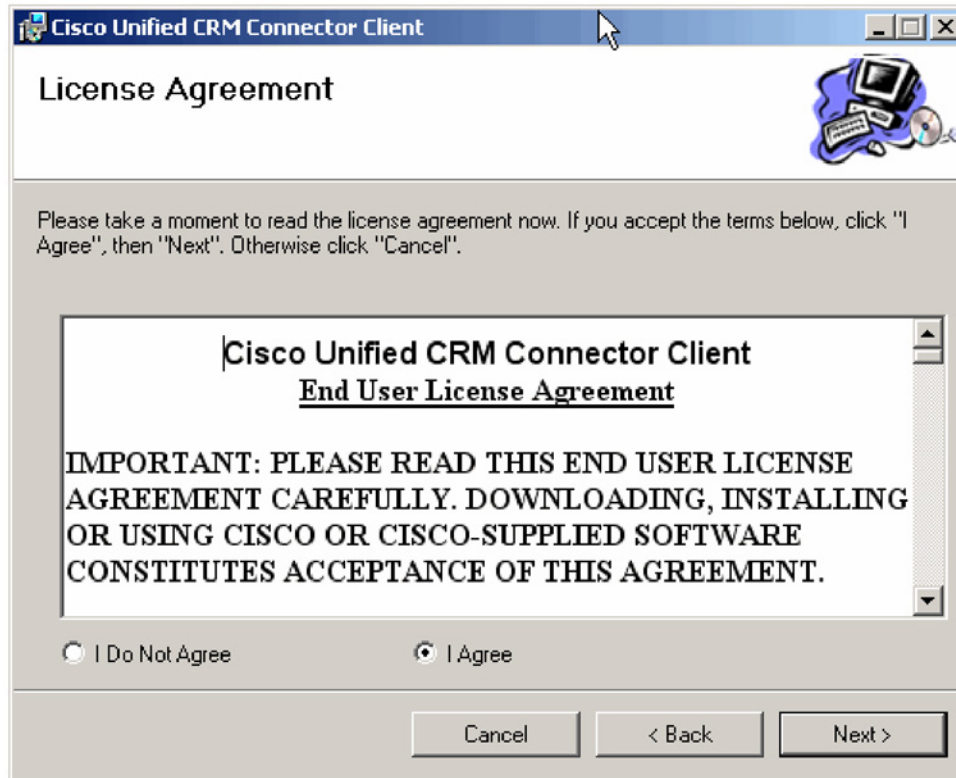
1. Click “Next” to begin installation (Figure 21).

**Figure 21**  
Client Installation Screen



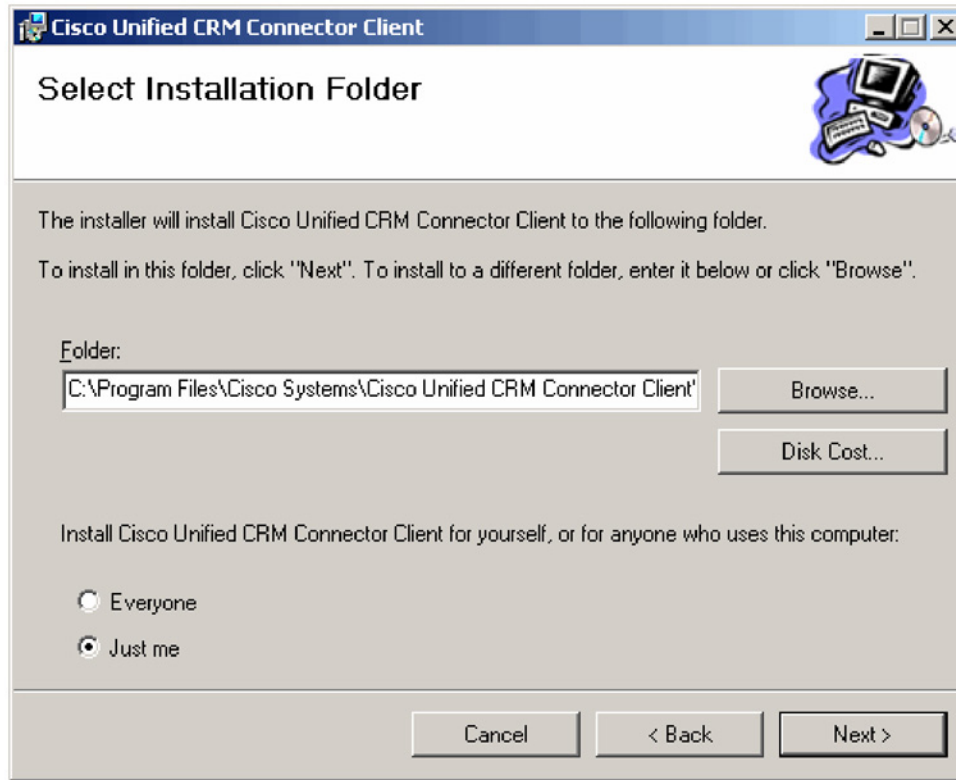
2. Click "I Accept" to accept the licensing agreement and click "Next" to continue (Figure 22).

**Figure 22**  
License Agreement Screen



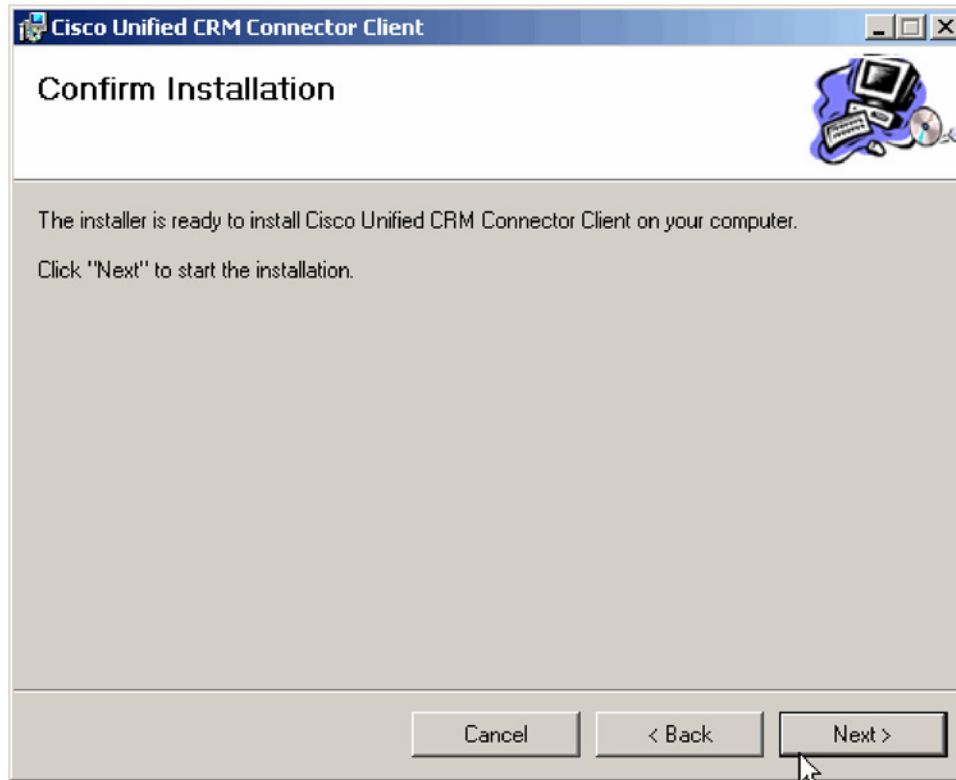
3. Click "Next" to accept the default installation folder (Figure 23).

**Figure 23**  
Installation Folder



4. Click "Next" to confirm the installation (Figure 24).

**Figure 24**  
Confirming Installation

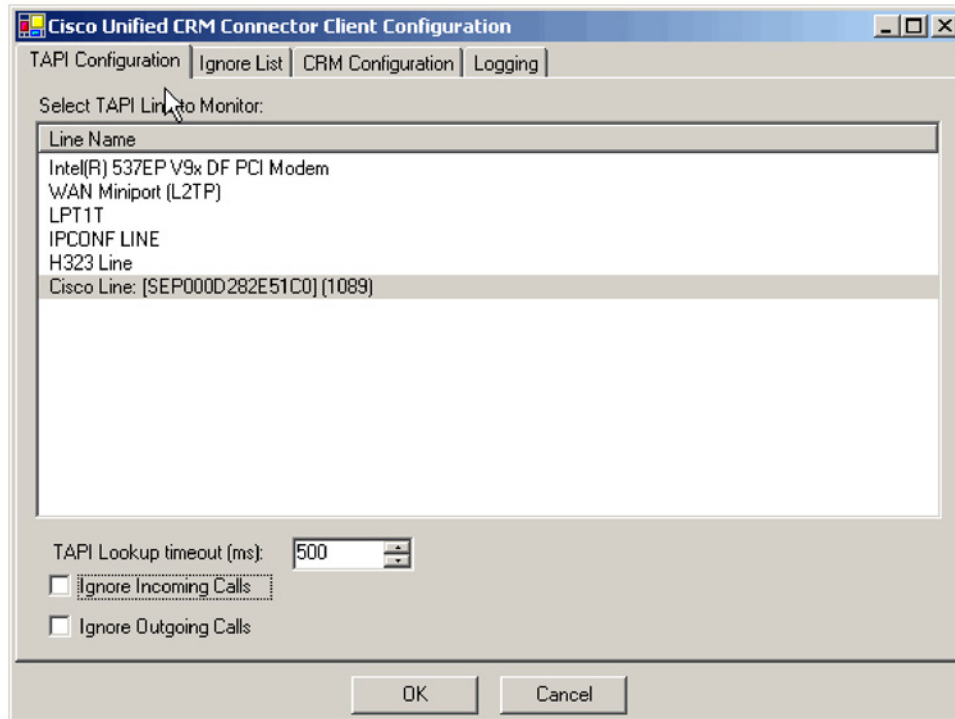


5. After the files copy, the client configuration wizard will be displayed, allowing you to configure the Cisco Unified CRM Connector Client.

### **TAPI Configuration Tab**

The TAPI Configuration tab allows you to specify which line should be monitored for incoming and outgoing calls (Figure 25). You can also request to completely ignore either inbound or outbound calls (or both). The "TAPI Lookup timeout" field specifies a value in ms, after which time the Cisco Unified CRM Connector client will manually ask the provider for caller ID information if the TAPI client has not provided it. If the client frequently reports the wrong phone number (such as the internal voicemail pilot extension), increasing this value may alleviate the situation.

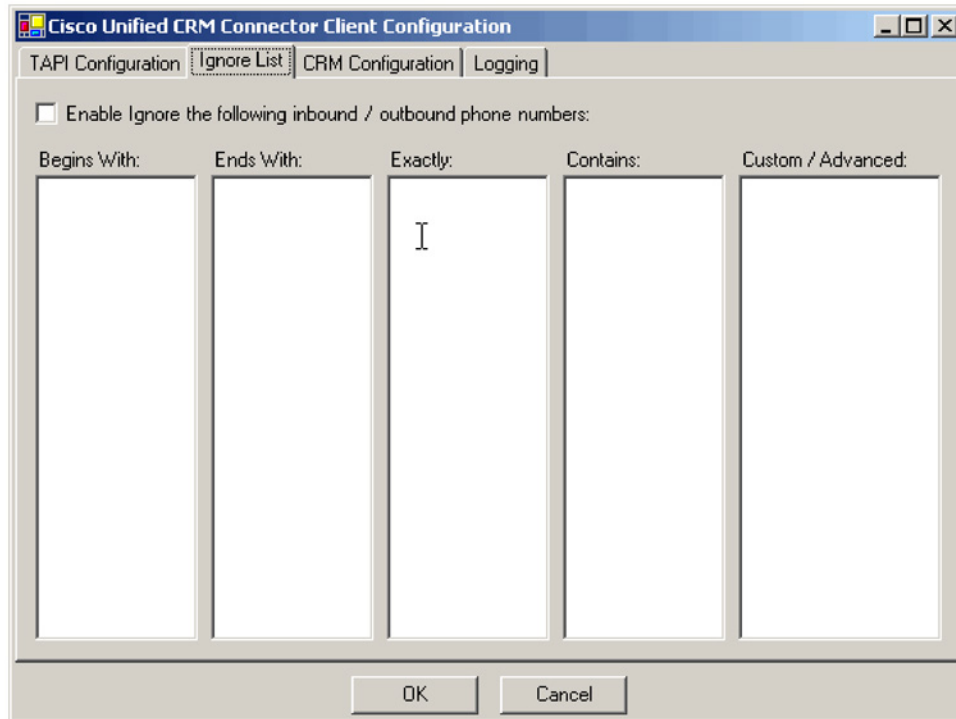
**Figure 25**  
TAPI Tab



### Ignore List Tab

The Ignore List tab allows you to specify phone numbers that the Cisco Unified CRM Connector client should ignore when processing inbound and outbound phone numbers from the client side (Figure 26). The first four boxes allow you to specify numbers to ignore when the phone number either begins with, ends with, is exactly, or contains the specified digit strings. In these four boxes, only digits are allowed. The fifth box, “Custom/Advanced”, allows you to specify regular expressions of phone number digit strings to ignore.

**Figure 26**  
Ignore List Tab



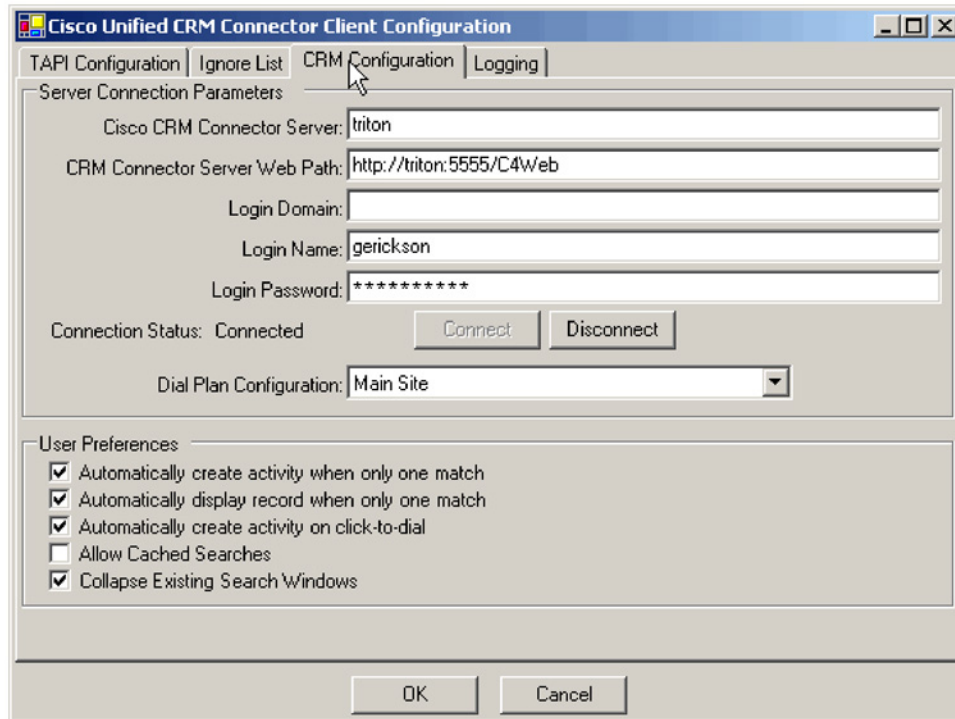
**Cisco Unified CRM Connector Configuration Tab**

The Cisco Unified CRM Connector Configuration tab allows you to specify server and login information for both the Cisco Unified CRM Connector server and the Microsoft CRM server (Figure 27). In the box titled “Cisco Unified CRM Connector Server”, specify the hostname that the Cisco Unified CRM Connector server is installed on. Upon initial configuration, when you change the value in this box, the value in the “CRM Connector Server Web Path” will be updated with the same value; you should change this if the Cisco Unified CRM Connector server Web components were installed on a different server or have a different access URL. The value in the “CRM Connector Server Web Path” should be a complete URL that points to the directory in which the C4Dial.aspx and C4Stub.aspx files are located.



**Figure 27**

Cisco Unified CRM Connector – CRM Configuration Tab



**Note:** You must also include the port number the Website is running on if it is something other than the default port 80. In the example shown in Figure 27, the hostname of the Microsoft CRM Server is “triton” and the Microsoft CRM Website is running on port 5555. Failure to provide the custom port number (other than port 80) will result in problems with the screen pops.

The “Login Domain”, “Login Name”, and “Login Password” boxes should all be configured with your Microsoft CRM login information. After the values in the top five boxes are configured, click the “Connect” button, and if successful, the status will show “Connected” and the “Dial Plan Configuration” drop-down box will become enabled. Then, select the appropriate Dial Plan Configuration (Phone Number Processor Configuration) as dictated by geographic location and as provided for by the Cisco Unified CRM Connector Server Service administrative configuration.

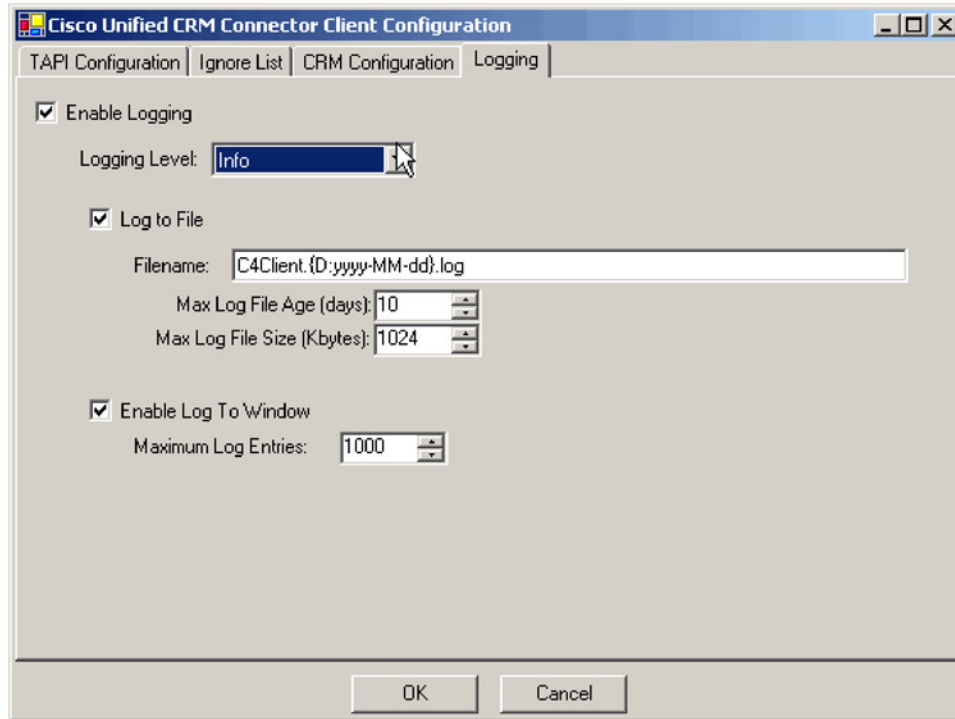
### Logging Tab

The *Logging* tab allows you to configure how the client logs system events (Figure 28). Several logging levels are available. Each level includes messages from all previous levels:

- Critical Errors
- Errors
- Warnings

- Info
- Debug
- Debug1 ... Debug 4

**Figure 28**  
Client Configuration Tab – Logging

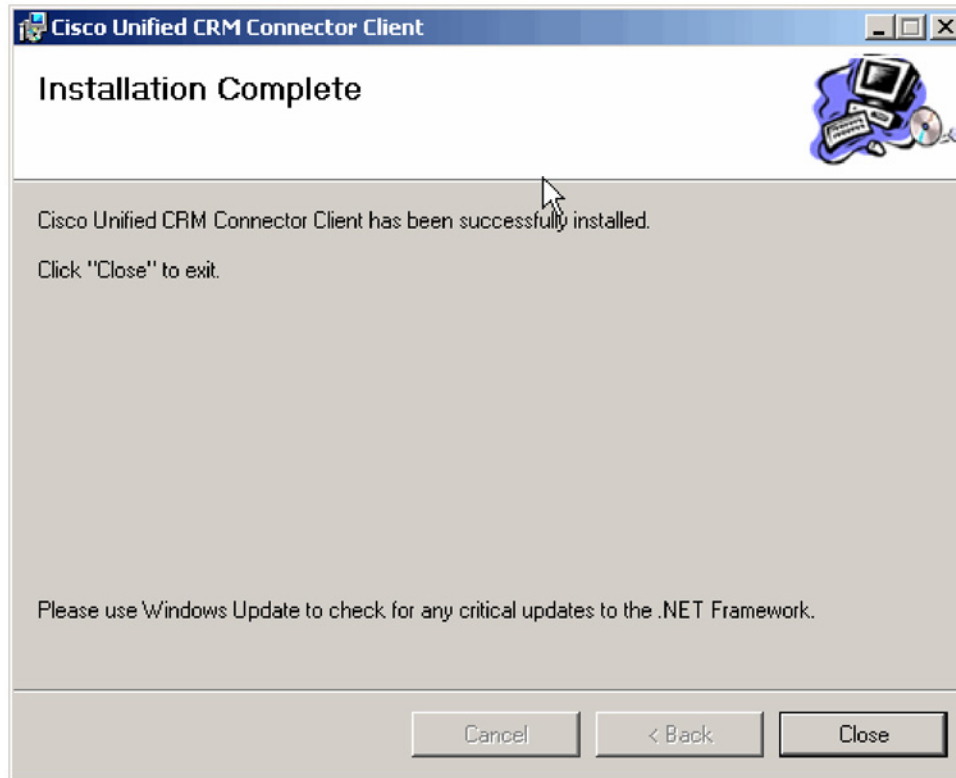


The “Critical Errors” level produces virtually no output, while the “Debug4” level produces copious output. The recommended setting is “Warnings” for normal operation. Note: Some messages (primarily relating to TAPI events) do not currently have message levels associated with them, and thus they are always logged.

There are two ways to collect the logging information: in a file or in a logging window. If you select “Log to File”, additional options relating to the filename and file aging become available. If you select “Enable Log to Window”, one additional option to control how many messages to display becomes available.

After completing the configuration, click “OK.” The final installation dialog will appear (Figure 29). The client is now installed and ready to run from the Start Menu.

**Figure 29**  
Installation Complete Screen



### Cisco Unified CRM Connector Client Operation

When the client first starts up, it will attempt to contact the Cisco Unified CRM Connector Server Service. If everything is successful, the client's main window will appear in the bottom-right corner of the screen (Figure 30).

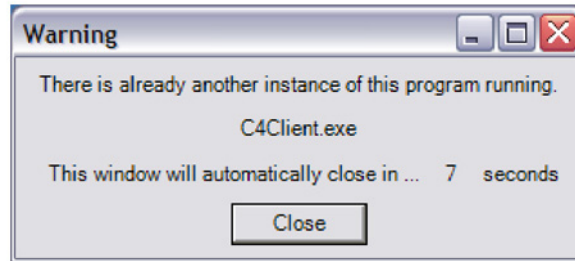
**Figure 30**  
Cisco Unified CRM Connector Client GUI



**Note:** The client performs a "minimize on close". This means that if you click the "Close" button in the above window, the client will not exit, but rather will minimize itself to the tray (the tray icon is always visible, however). To actually exit the client, select "Exit" from the menu when right-clicking on the menu.

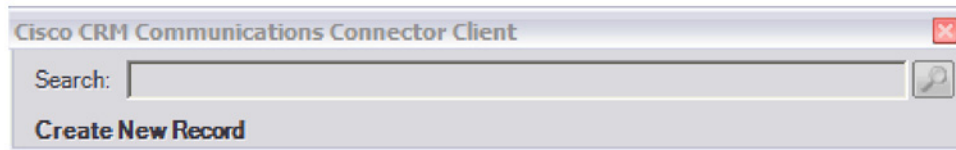
The client is a single-instance application – only one copy of the application can be running at any one time. If you attempt to start a new client while one is running, you will receive a warning message (Figure 31).

**Figure 31**  
Error Message



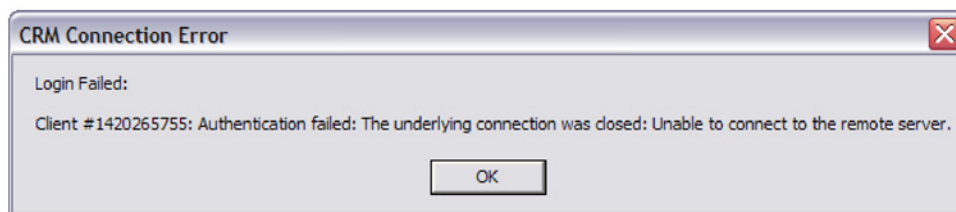
If the window is greyed out, as shown in Figure 32, the attempt to contact the server was unsuccessful. You should have received an error message.

**Figure 32**  
Error Message



One possible error message is shown in Figure 33. In this case, the C4Server was successfully contacted, but the login was not successful because the Cisco Unified CRM Connector server could not be contacted by the Cisco Unified CRM Connector server component.

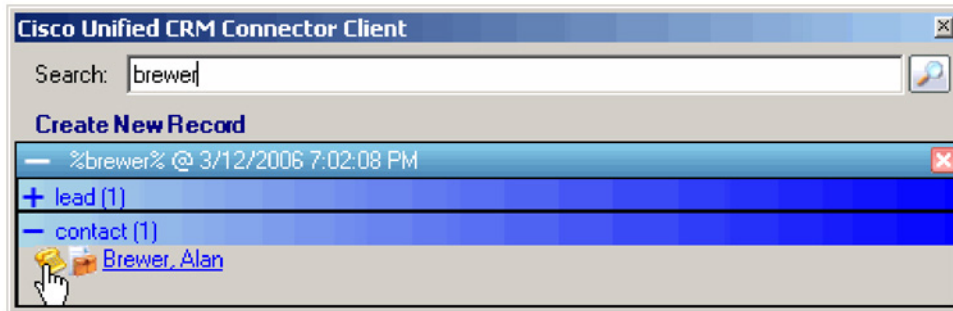
**Figure 33**  
Error Message – Connection Error



To perform a manual search, type a contact name in the search box and press [ENTER] or click the search button at the right (Figure 34). The results will be displayed in collapsible panels. If there is only one matching type of record, the panel will be displayed in its expanded form. To expand or collapse a contact-type panel, click on the blue horizontal bar that represents that contact type.

**Figure 34**

Cisco Unified CRM Connector Client GUI



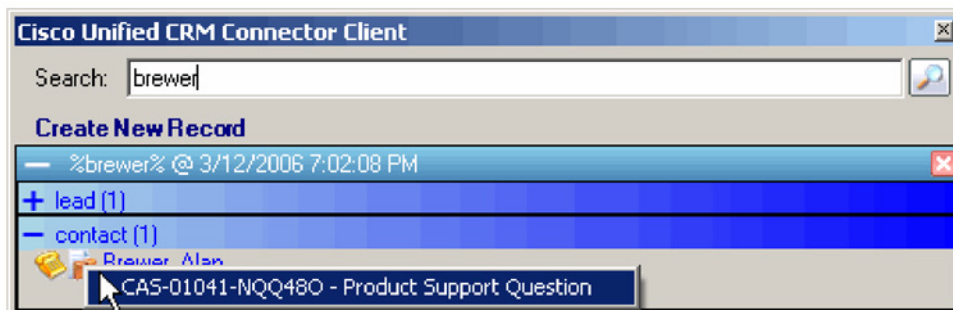
The Cisco Unified CRM Connector client provides a multiple-search interface, which means that multiple search results can be displayed at any one time. Each search result is also contained on a collapsible panel with a blue bar. Note: The search collapsible panel has a “close” button – the red “X” at the right side of the search panel (*not the window close button*). To remove the search results for any particular search, simply click that panel’s close button.

Inside each search panel will be the results of the search. There are three hotspots in each result. If you click on the telephone icon (📞), the client will create a phone call activity record for that contact. If the search was initiated by a phone call, the details of the phone call will be automatically filled in.

If you click the briefcase icon (📁), you will be presented with a menu showing the active support cases for that contact (Figure 35). Clicking one of these items will open that support case.

**Figure 35**

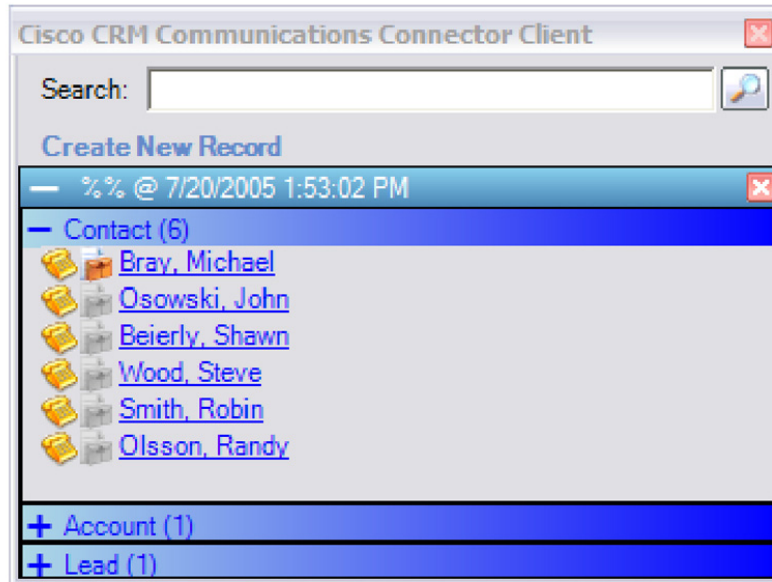
Cisco Unified CRM Connector Client GUI



If the briefcase icon is grayed out, as shown in Figure 36, no support cases are available for that contact, or the administrator has not configured the server to return information about support cases. Finally, if you click the name, the contact record itself will be opened.

**Figure 36**

Cisco Unified CRM Connector Client GUI



Creating a new contact, account, or lead record is easy. Click “Create New Record” and then select the type of record to create from the menu. Clicking one of the items will open a new blank record in the Cisco Unified CRM Connector interface.

The Cisco Unified CRM Connector client maintains an icon in the system tray. There are two possible icons:



Indicates that the client has successfully contacted the server and logged in

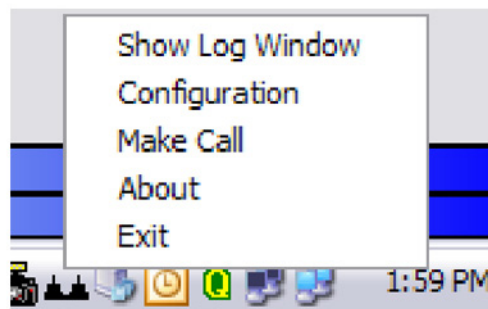


Indicates that the client either could not contact the C4 server or could not log in

Left-clicking on the system tray icon hides or displays the main client window. Right-clicking on the icon displays the menu as shown in Figure 37.

**Figure 37**

Cisco Unified CRM Connector GUI Menu Options



The options are as follows:

- Show/Hide Log Window: This option (visible only if logging to a window is enabled) will show or hide the log window.
- Configuration: Accesses the client configuration dialog.
- Make Call: Enables user to manually access the “Make Call” window.
- About: Displays client version and support information.
- Exit: Exits the client.

## Configuring the IP Phone Lookup Service and XML Display Service

After the installation of the Cisco Unified CRM Connector Server, the administrator may choose to configure the IP Phone Lookup Service. The IP Phone Lookup Service for the Cisco Unified CRM Connector has two main features. A lookup service and an Extensible Markup Language (XML) screen display on the Cisco Unified IP Phone.

The lookup service allows you to perform a manual lookup against the Cisco Unified CRM Connector database from the Cisco Unified IP Phone by searching for a Microsoft CRM contact name. Information about the contact is then displayed on the XML display of the IP phone. The XML screen display feature provides a screen push to the IP phone display when the incoming caller ID uniquely matches a contact.

**Note:** In order to use the IP Phone Lookup Service features for the Cisco Unified CRM Connector, you must have a Cisco Unified IP Phone with an XML-capable display. Follow the steps below to configure each of the services. Each service operates independently, so you can configure the lookup service feature or the XML screen display feature.

### Step 1: Configure the IP Phone Lookup Service

The IP Phone Lookup Service is located in the “IPPhoneService” directory inside the Cisco Unified CRM Connector Server installation directory. Inside this directory is a file called web.config that contains the settings for the

```
<appSettings>
  <!-- <add key="CRMLoginInfoEnc" /> -->
  <add key="CRMLoginUsername" value="Administrator" />
  <add key="CRMLoginPassword" value="pass@word1" />
  <add key="CRMLoginDomain" value="CRM" />
  <add key="CRMServiceURL" value="http://triton:5555/MSCRMServices/2006/CrmService.aspx" />
  <add key="CRMSearchEntitiesXMLDoc" value="C:\Program Files\Cisco Systems\Cisco Unified CRM
Connector Server\IPPhoneService\CRMSearchEntities.xml" />
</appSettings>
```

There are five main settings:

*CRMLoginUsername* – stores the username that will be used to perform lookups

*CRMLoginPassword* – stores the password corresponding to CRMLoginUsername

*CRMLoginDomain* – the domain of the user specified in CRMLoginUsername

*CRMServiceURL* – the URL to the CrmService.aspx page

*CRMSearchEntitiesXMLDoc* – a full path to the CRMSearchEntities.xml file (located in the IPPhoneService directory).

You must validate that the CRMServiceURL and CRMSeachEntitiesXMLDoc values are correct. The user specified in CRMLoginUsername, CRMLoginPassword, and CRMLoginDomain must be a user that has access to perform searches in CRM. If you do not want to store plaintext passwords in this file, you can do the following:

1. Save the plaintext version of the file with the username, password, and domain specified.
2. Continue with the rest of the configuration steps below.
3. After everything is working, open a Web browser to the Web page <http://triton:5351/EncryptInfo.aspx> (the specific URL will depend on your local configuration) and it will present you with an encrypted string that represents the username, login, and domain.
4. Specify this string as the value for the key “CRMLoginInfoEnc”, and remove the CRMLoginUsername, CRMLoginPassword, and CRMLoginDomain keys. Also make sure you uncomment the CRMLoginInfoEnc key.

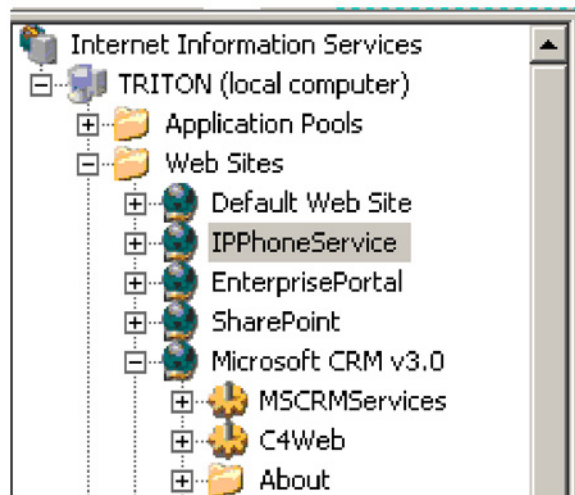
## Step 2: Configure a Virtual Directory or a Virtual Site for the IPPhoneService

In the IIS Administration tool, you must create a virtual directory or a virtual site for the IPPhoneService to respond on. This virtual directory can be located in any Website hosted on the server, and can be called whatever you like.

This example will create a virtual site called “IPPhoneService” on port 5351. A virtual site is the preferred mechanism because it ensures that the configuration of the IPPhoneService is not affected by other configuration values in the host site if a virtual directory is used. If you choose to use a virtual directory, make sure that you are able to see the output of the C4Lookup.aspx page as shown in Figure 38 before proceeding.

**Figure 38**

IP Phone Service IIS Virtual Directory



The access properties for the virtual directory should be set to “Read” and “Run Scripts”.

The user should now be able to test the configuration by opening a Web browser and specifying the following URL:

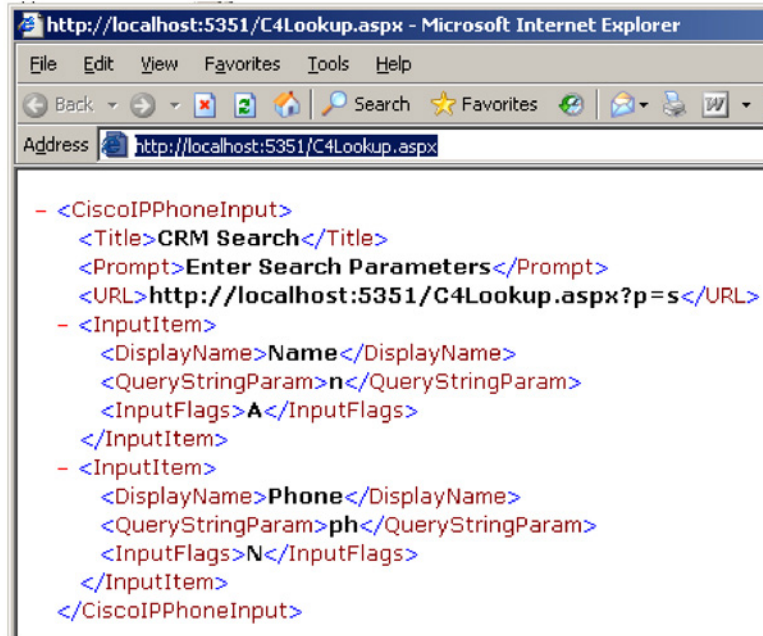
<http://triton:5351/C4LookupService/C4Lookup.aspx> (the exact URL will change depending on how your have configured the virtual directory).

You should see a response similar to the one in Figure 39.



**Figure 39**

Testing the IP Phone Service URL



### Step 3: Configure the Service in Cisco Unified CallManager or Cisco Unified CallManager Express (optional)

When configuring the IP Phone Lookup Service in Cisco Unified CallManager or Cisco Unified CallManager Express, use the path to the virtual directory or site created in the previous step. For example: <http://triton:5351/C4LookupService/C4Lookup.aspx>, where "triton" is the hostname of the server hosting the lookup service, in this case, the Microsoft CRM server. The virtual directory or virtual site responds to requests on port 5351.

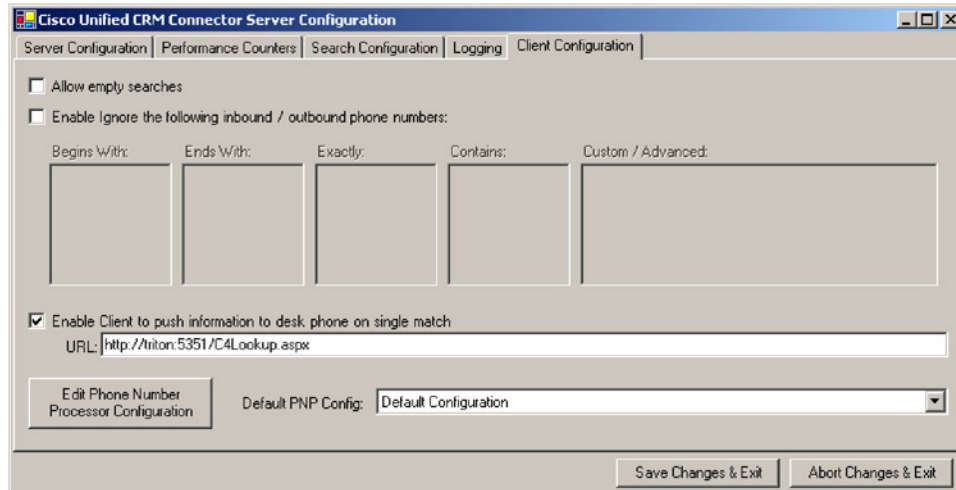
Refer to the Cisco Unified CallManager Express or Cisco Unified CallManager product documentation for detailed instructions on how to configure and publish the IP Phone Lookup Service.

### Step 4: Configure the XML Screen Display

To enable the XML screen display on the IP phone for users of the Cisco Unified CRM Connector, you must configure the server component to allow this. In the server component configuration wizard, go to the Client Configuration tab (Figure 40). Enable and specify the path to the IP Phone Lookup Service, for example: <http://triton:5351/C4LookupService/C4Lookup.aspx>.

**Figure 40**

Cisco Unified CRM Connector Client Configuration Tab



### Step 5: Customize the Information Displayed on the IP Phone (optional)

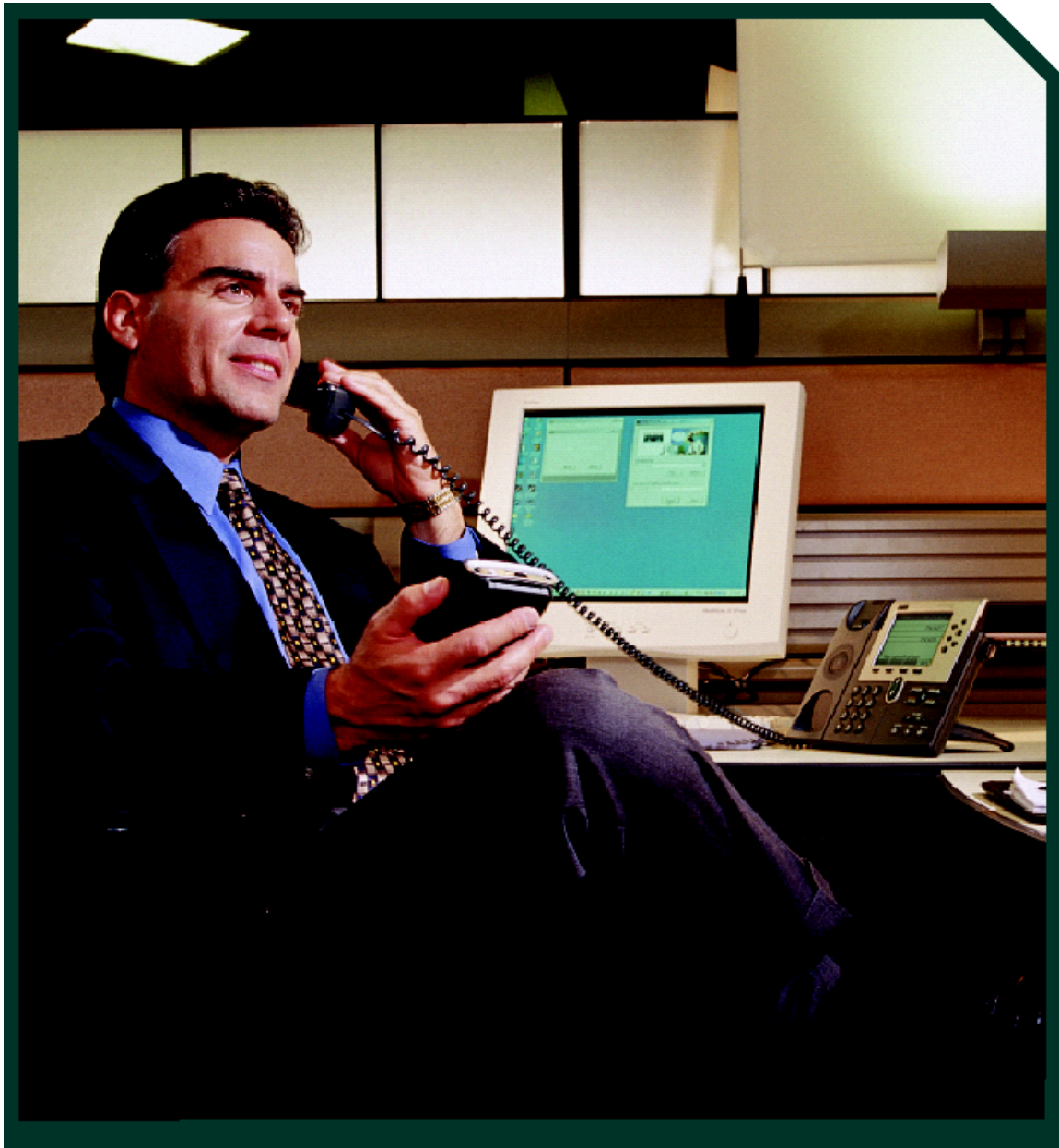
You may edit the CRMSearchEntities.xml file to specify what entities are searched and what information is presented on the information screens on the IP phone display. This customization is an advanced step and is not needed to display the default IP Phone service.

## Upgrading Cisco Unified CRM Connector Software

**Note:** This upgrade process does not work for previous 2.x versions of Cisco Unified CRM Connector software. This only works for 3.x versions and beyond. There is no process for upgrading Cisco Unified CRM Connector software version 2.x to version 3.0.

To upgrade to a newer version of Cisco Unified CRM Connector:

1. Download the latest Cisco Unified CRM Connector software installers. The new client does not need to be downloaded, even though that is the component that is being updated.
2. Make a backup copy of the Cisco Unified CRM Connector server installation directory to back up your existing configuration files (optional).
3. Uninstall the older Cisco Unified CRM Connector server component using “Add/Remove Programs”.
4. Install the new Cisco Unified CRM Connector server component into the same directory. During installation, the server configuration window should appear and all the existing settings should be there.
5. Restart the Cisco Unified CRM Connector client software. The client should recognize that there is a new version of the client available from the server, and will ask if you want to upgrade. Respond “Yes” to the upgrade question. The client will be upgraded to the corresponding new version that is provided by the server. Repeat this step on each installed client.



## **Integrating Cisco Unified Contact Center Express with Microsoft CRM 3.0**

## CADLink Introduction

The Cisco® Unified CRM Connector developed for the Microsoft Customer Relationship Management (CRM) application allows small and medium-sized companies to offer superior customer service by connecting Cisco IP-based communications with Microsoft CRM.

Integrated CRM solutions are a cost-competitive way to enable businesses to enhance every facet of the customer care organization, from individual knowledge workers to formal and informal call-center operations. In the call center, integrated CRM can improve customer service with priority queuing or special call handling for select customers. And it can support computer telephony integration (CTI) with database applications, call recording, and screen pop information.

This Integration Note addresses the desktop integration between Cisco Agent Desktop, the desktop component of Cisco Unified Contact Center Express, and Microsoft CRM. The integration to Microsoft CRM is based on the CTI integration capabilities offered in the Cisco Agent Desktop Enhanced and Premium offers for Cisco Unified Contact Center Express. This integration is performed through a utility program included with Cisco Unified CRM Connector called CADLink.

## Need for CADLink

CADLink's primary purpose is to act as an intermediary between the capabilities of Cisco Agent Desktop and Cisco Unified CRM Connector. This link is needed because Cisco TAPI cannot properly detect caller ID information from calls routed by Cisco Unified Contact Center Express. CADLink remedies this situation by providing one-way communication of caller ID information from Cisco Agent Desktop to Cisco Unified CRM Connector when the agent receives calls via Cisco Unified Contact Center Express.

## Integration Methodology

In order to achieve the integration, the workflow events available in Cisco Unified Contact Center Express are used to pass inbound call information to CADLink, which is then passed on to Cisco Unified CRM Connector to be acted upon. Outbound dialing and call recognition will use Cisco TAPI. There are three phases to every inbound call that are of importance to Cisco Unified CRM Connector:

1. **Ringling:** Caller ID information must be processed during the ringing phase of the phone call. It is at this point that the Cisco Unified CRM Connector search window should appear.
2. **Answered:** At this point, the Cisco Unified CRM Connector client knows that the phone call has begun.
3. **Dropped:** When the call is dropped, the Cisco Unified CRM Connector client will store the appropriate information about call duration.

These events correlate well with those available in Cisco Unified Contact Center Express. Each event will use the "Call External Application" event action to execute CADLink with appropriate command line parameters. However, because the "Call External Application" action is restricted in the command-line parameters available, CADLink relies on the *number* of command-line parameters to determine which event has occurred. For this reason, one of the events (Dropped) uses placeholder parameters. It is important that the instructions be followed as described.

## Integration Procedures

**Note:** Before beginning the integration procedures for Cisco Unified Contact Center Express and Cisco Agent Desktop, you will need to complete the preliminary installation and configuration steps for Cisco Unified CallManager available at the beginning of this document.

This section provides detailed instructions on configuring the integrations. Each of the integrations is based on the CTI integration capabilities offered in Cisco Agent Desktop. For additional information, please refer to the Cisco Agent Desktop Administration Guide:

[http://www.cisco.com/univercd/cc/td/doc/product/voice/sw\\_ap\\_to/apps\\_3\\_5/english/admn\\_app/cad\\_admn.pdf](http://www.cisco.com/univercd/cc/td/doc/product/voice/sw_ap_to/apps_3_5/english/admn_app/cad_admn.pdf).

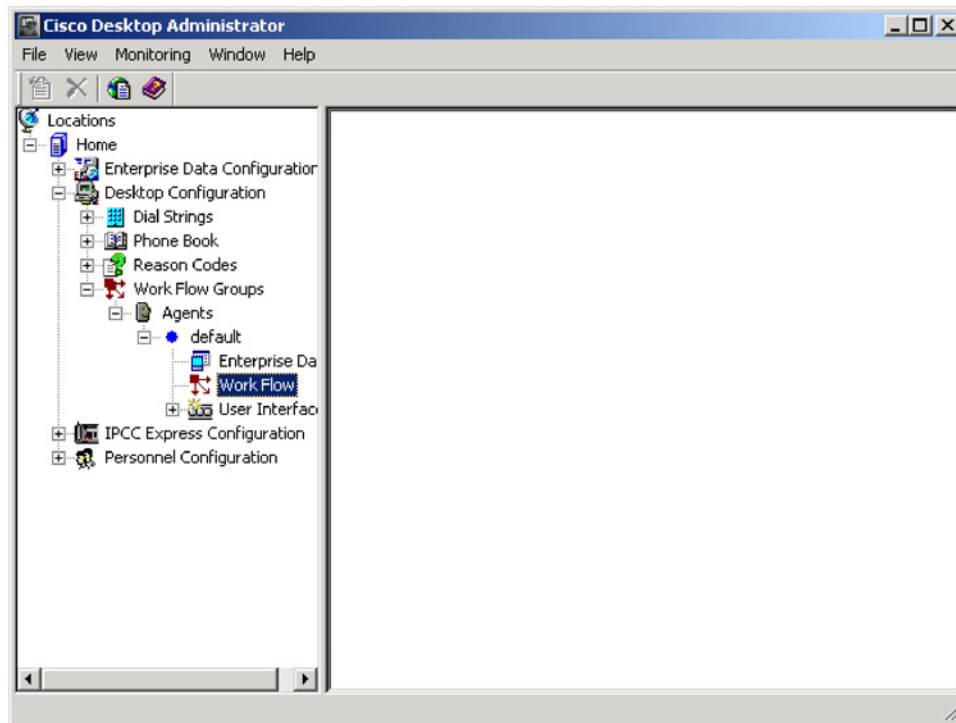
The integration is performed by administrative configuration of workflows in the Cisco Agent Desktop Desktop Manager. Workflows must first be assigned to the agent.

To assign a workflow to an agent:

1. Open the Cisco Desktop Administrator application (Figure 41).

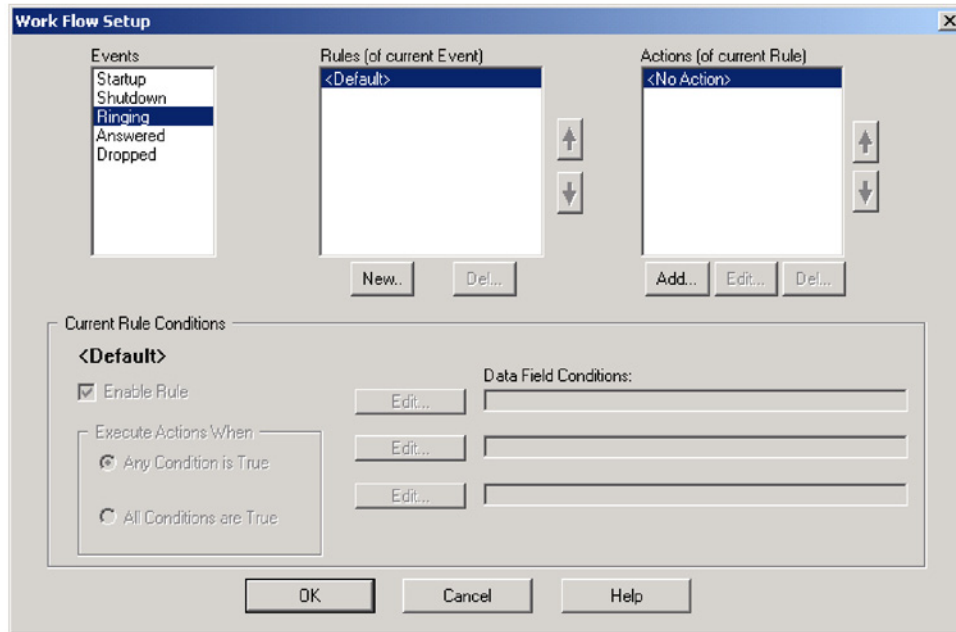
**Figure 41**

Cisco Desktop Administrator Application



2. Select "Work Flow Groups" from the left pane.
3. Select "Agents".
4. Select the agent type you wish to configure.
5. Click on the "Work Flow" button in the right pane.
6. The "Work Flow Setup" window will appear (Figure 41).

Figure 42



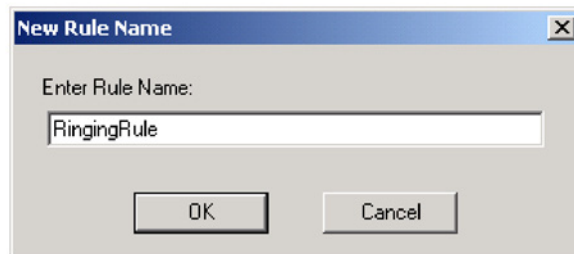
### Ringing Event

To configure a Ringing event:

1. Select “Ringing” from the Events list in Figure 42.
2. Click “New...” to add a new Rule (middle list).
3. Call the rule “RingingRule”, or something similar that describes the rule appropriately (Figure 43).

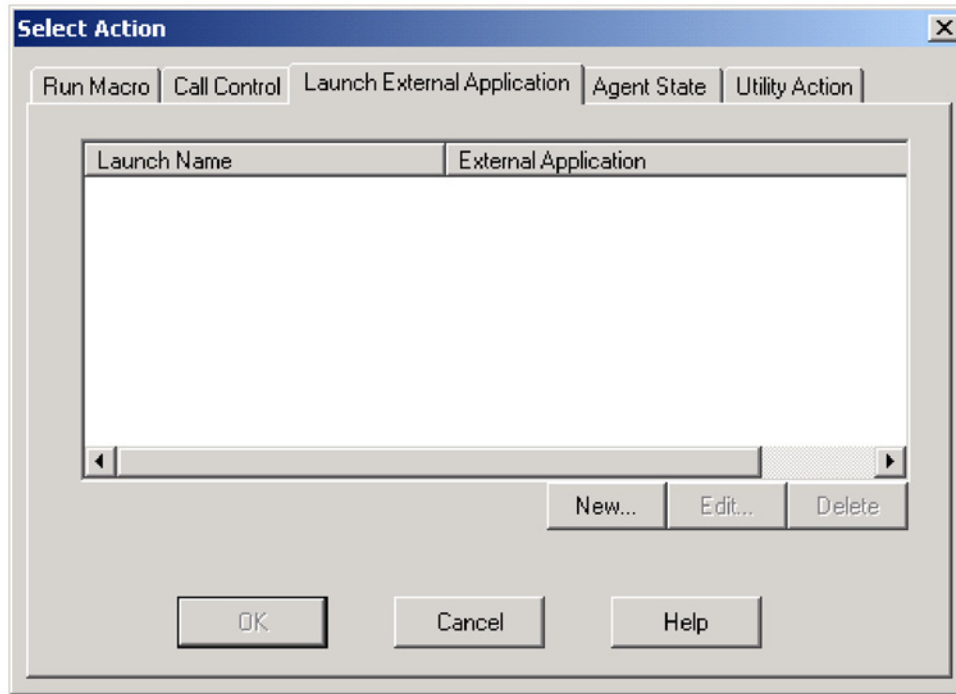
Figure 43

Create RingingRule



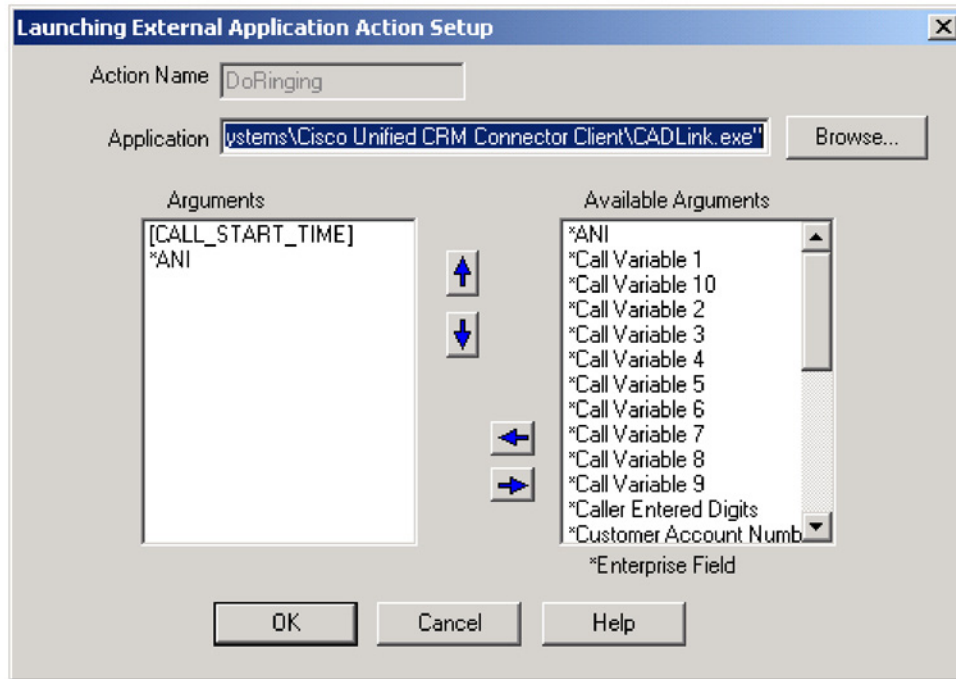
4. Select the “RingingRule” in the list of rules, and then click “New...” to add a new action (from the right list in Figure 42). The “Select Action” window will appear (Figure 44). Select the tab titled “Launch External Application”.

**Figure 44**  
Select Action Window



5. Click “New...” to add a new “Launch External Application” action. The “Launching External Application Action Setup” window appears (Figure 45).

**Figure 45**  
External Application Setup Window



6. Call the Action “DoRinging”. Configure the application as “C:\Program Files\Cisco Systems\Cisco Unified CRM Connector Client\CADLink.exe”, or whatever the path to the CADLink.exe executable file is on the client machines.

**Note:** The Cisco CRM Connector client application *must* be installed in the same physical location on all clients that will use CADLink.

7. Select the “[CALL\_START\_TIME]” as the first argument.

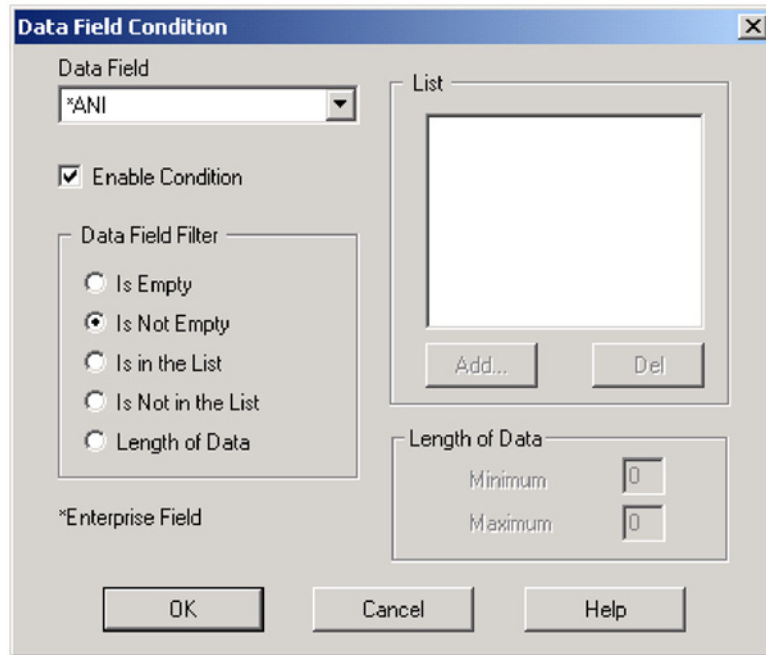
8. Select the “\*ANI” as the second argument.

9. Click “OK” to accept the configuration.

10. In the Work Flow Setup window (Figure 42), enable the RingingRule by clicking the first “Edit” box in the Current Rule Conditions. A “Data Field Condition” window will appear (Figure 46). Select “\*ANI” from the Data Field. Select “Is Not Empty” in the “Data Field Filter” list. Make sure that “Enable Condition” is checked. Then click “OK”.

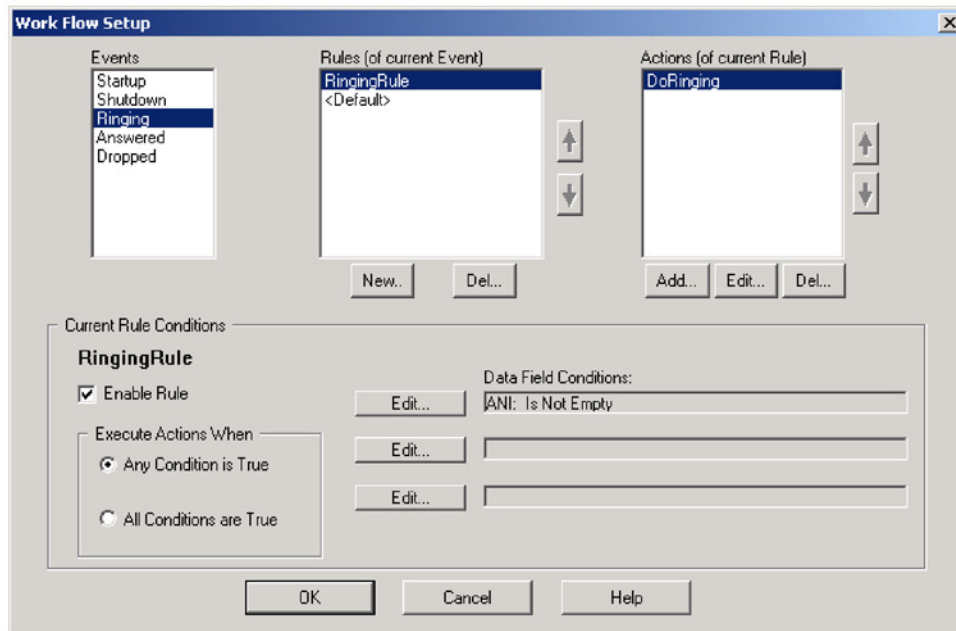


**Figure 46**  
Data Field Condition Window



11. The WorkFlow Setup window should now appear as shown in Figure 47. Check “Enable Rule” to make the rule active.

**Figure 47**  
Work Flow Setup



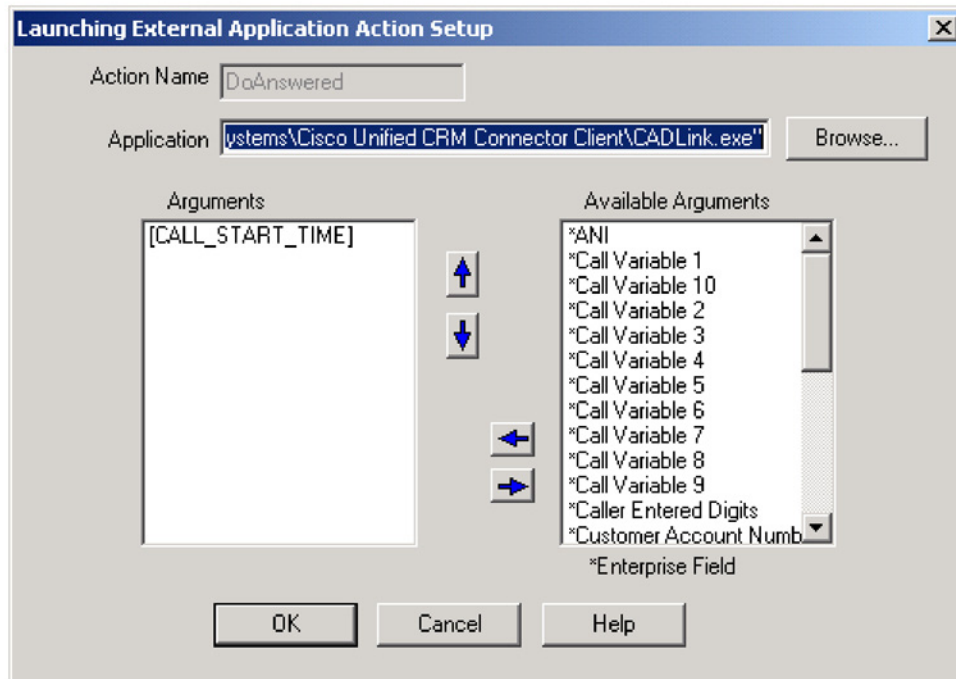
12. Repeat these steps for the Answered and Dropped events, making appropriate modifications as shown in the next two sections.

### Answered Event

To configure the Answered Event, follow the same steps as for the Ringing event, except call the rule “AnsweredRule”, and the action “DoAnswered”. The parameters for the DoAnswered event are simply “[CALL\_START\_TIME]” as shown in Figure 48.

**Figure 48**

Launch External Application Window

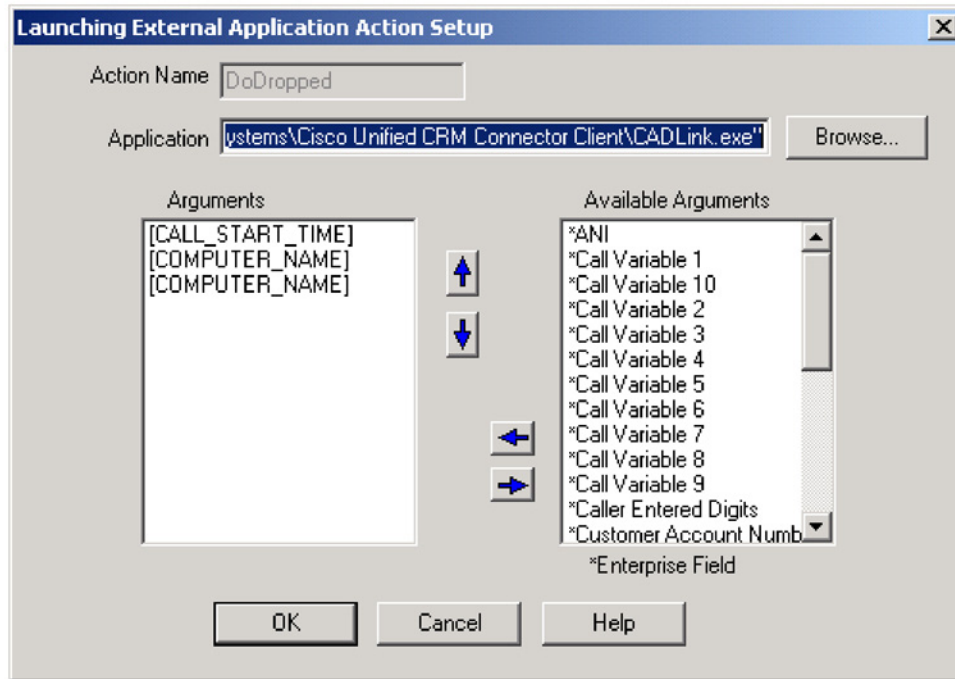


### Dropped Event

To configure the Dropped Event, follow the same steps as for the Ringing event, except call the rule “DroppedRule”, and the action “DoDropped”. The parameters for the DoAnswered event are “[CALL\_START\_TIME]”, “[COMPUTER\_NAME]”, and “[COMPUTER\_NAME]”. The “COMPUTER\_NAME” parameter is repeated, and is simply a dummy placeholder to ensure that there are three parameters. This is shown in Figure 49.

**Figure 49**

Launch External Application Window



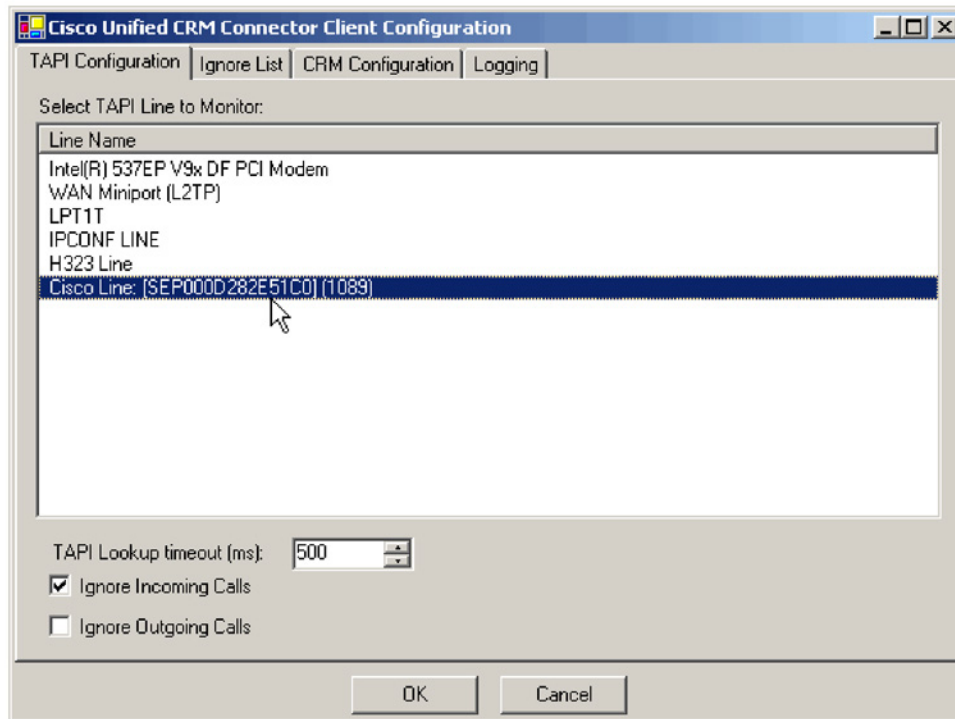
**Additional Configuration Steps for Cisco Unified CRM Connector Client**

Inbound call information will be received from the Cisco Agent Desktop. You must configure the client to ignore incoming TAPI call information. This is done so that the Cisco Unified CRM Connector client will be able to process incoming calls routed by the automated call distributor (ACD) and not via the TAPI messages sent from Cisco Unified CallManager. To do this, check the “Ignore Incoming Calls” box shown in Figure 50.

**Note:** Failure to disable incoming TAPI messages will result in double screen pops of the user-configured screen pops (that is, Microsoft CRM contact records and phone call activity records).

**Figure 50**

Cisco Unified CRM Connector – TAPI Tab Configuration



You are now ready to use the Cisco Unified CRM Connector.

## Troubleshooting

1. Make sure you have Microsoft CRM running. You need to be logged in and connected before any of the integration macros can work.
2. Make sure you have the Cisco Unified CRM Connector running. You should see it appear in the system tray on the right side of the Windows taskbar.
3. Confirm events are exactly as described. Typos and missing or extra spaces will cause problems.
4. If you see an error message saying “cadlink.exe is not recognized...”
  - a. Confirm that CADLink is installed in the proper location. Use “Start | Search | for files or folders” on the client machine and enter “cadlink.exe” in the “Search for files or folders named:” field. It should appear in the C:\Program Files\Cisco Systems\Cisco Unified CRM Connector Client\CADLink.exe
  - b. If cadlink.exe is found somewhere else, copy it to the C:\Program Files\Cisco Systems\Cisco Unified CRM Connector Client\ folder.



## For More Information

### Product Links

For more information on the Cisco Unified CRM Connector, visit the Cisco and Microsoft Fast Start Website at:

<http://www.ciscomicrosoftsmb.com>.

For more information on Cisco Unified Contact Center Express, visit: <http://www.cisco.com/en/US/products/sw/custcosw/ps1846/index.html>.

### Support Aliases

For assistance on configuring and using Cisco Agent Desktop, send e-mail to: [Ask-cad@external.cisco.com](mailto:Ask-cad@external.cisco.com).

For assistance on Cisco Unified Contact Center Express, send e-mail to: [Ask-icd-ivr-support@external.cisco.com](mailto:Ask-icd-ivr-support@external.cisco.com).

For product plans and marketing information, send e-mail to: [Ask-icd-ivr-pm@external.cisco.com](mailto:Ask-icd-ivr-pm@external.cisco.com).

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