



## **Cisco CAD Service Information**

CAD 6.4 for Cisco Unified Contact Center Express Release 5.0  
Cisco Unified Communication Manager Express Edition  
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## Revision History

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## Revision History

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## CAD Documentation

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The following documents contain additional information about CAD 6.4:

- *Cisco CAD Installation Guide*
- *Cisco Desktop Administrator User Guide*
- *Cisco Agent Desktop User Guide*
- *Cisco IP Phone Agent User Guide*
- *Cisco Supervisor Desktop User Guide*

## **CAD 6.4 Applications**

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CAD 6.4 includes the following applications:

### **User Applications**

- Cisco Desktop Administrator (CDA)
- Cisco Agent Desktop (CAD)
- Cisco Supervisor Desktop (CSD)
- Cisco IP Phone Agent (IPPA)

### **Services**

- Chat Service
- Directory Services
- Enterprise Service
- IP Phone Agent Service
- Cisco Desktop LDAP Monitor service
- Licensing & Resource Manager Service
- Recording & Playback Service
- Recording & Statistics Service
- Sync Service
- Voice-Over IP Monitor Service

## Version Information

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All CAD applications include version information. This can be obtained by:

- Checking the About dialog box (clicking **Help > About** on desktop application menu bars)
- Right-clicking the application executable and selecting **Properties** from the resulting menu
- Opening \*.jar and \*.war files with Winzip and locating the Manifest.mf file, which contains version information

Version information is a series of 4 numbers separated by periods (for example, **6.4.1.15**). From left to right, these represent:

- The major feature version number
- The minor feature version number
- The service level (maintenance) number
- The build number



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# Capacity and Performance Guidelines

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## Product Limitations

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### General

CAD 6.4 can be installed at multiple sites, however, for the most part each site operates independently of the other. Administration must be done separately at each site, and agents at one site are not visible to a supervisor at another.

### Desktop Administrator

#### Maximum Number of Rules for an Event

There is no physical limitation on the number of rules that can be applied to an event. However, long lists of complex rules take longer to process than shorter lists.

#### Rules and Action Names

Rule and action names are limited to 64 characters.

#### Number of Rule List Items

The number of items in a rules list is limited to 64K. For instance, if each data item in the list is 4 characters, the number of items in the list should not exceed 16K.

#### Maximum Number of Actions on a Rule

There is no physical limitation on the number of actions that can be applied to a rule. However, long lists of actions or actions that take a long time to run will affect performance. If an action takes a long time to run, Agent Desktop might not respond quickly to telephony events such as incoming calls and disconnects.

### **Macro Recorder**

You cannot click **Start** or press **Ctrl-Break**, **Ctrl-Esc**, or **Ctrl-Alt-Delete** when recording a macro. The Windows operating system disables macro recording when any of these are pressed.

The macro recorder does not record mouse movements.

### **Desktop Administrator Work Flow Group Limits**

The number of work flow groups allowed in Desktop Administrator is limited by the number of directories allowed by the operating system. Although it is possible to create a large number of work flow groups, the maximum number of work flow groups should not exceed 10.

### **Enterprise Data**

Desktop Administrator supports 256 data fields and 16 data layouts with 16 data fields per layout. An enterprise data field entry can be up to 255 characters long.

## **Supervisor Desktop**

With some older sound cards, you will not be able to run other audio-capable applications such as Windows Media Player while running Supervisor Desktop. This is because the card and/or drivers do not support simultaneous use of it. Most new sound cards do not have this limitation.

Transfer and conference scenarios involving non-agents, and conferences created using the Join softkey on the IP phone may not display correctly in Supervisor Desktop.

## **Agent Desktop**

### **Deflected Calls**

Agent Desktop does not support deflected calls—calls that are forwarded automatically from one phone to another.

### **Phone Book**

You can have 1 employee phone book. The number of global phone books is limited only by the PC's memory.

### **Recent Call List**

The Recent Call List can contain a maximum of 100 entries. When the maximum is reached, the oldest entry is deleted.



### **IP Phone Agent**

IP phone agents are not automatically logged back in after being logged out due to loss of connectivity with the CTI server.

Transfer and conference scenarios involving non-agents may not display correctly in Supervisor Desktop.

### **Services**

#### **Chat Service**

There can be 2 instances of the Chat service per logical contact center, with 1 instance per server. Only one service instance is active at any one time; the other instance is on standby.

The Chat service supports a maximum of 150 agents and 30 supervisors per team. Team Performance Messages (TPMs) can contain a maximum of 200 characters.

#### **Enterprise Service**

There can be 2 instances of the Enterprise service per logical contact center, with 1 instance per server. Only one service instance is active at any one time; the other instance is on standby.

#### **IP Phone Agent (IPPA) Service**

There can be 2 instances of the IPPA service per logical contact center, with 1 instance per server. Only one service instance is active at any one time; the other instance is on standby.

#### **Cisco Desktop LDAP Monitor service**

There can be 2 instances of the LDAP Monitor service per logical contact center, with 1 instance per server.

#### **Licensing & Resource Manager (LRM) Service**

There can be 2 instances of the LRM service per logical contact center, with 1 instance per server. Only one service instance is active at any one time; the other instance is on standby.

#### **Recording & Playback Service**

There can be 2 instances of the Recording & Playback service per logical contact center, with 1 instance per server. Only one service instance is active at any one time; the other instance is on standby.

## Recording and Licensing

Recording and playback are licensed features. The number of licenses available is determined by the type of bundle you have purchased.

Bundle Type	Number of Recording and Playback Licenses
Standard	1
Enhanced	32
Premium	80

A license is used whenever a supervisor or agent triggers the recording function, and is released when the recording is stopped.

A license is also used whenever a supervisor opens the Supervisor Record Viewer, and is released when the Supervisor Record Viewer is closed.

See ["Guidelines for Sizing Deployments" on page 25](#) for more information on system configurations needed to support the various levels of recording and playback.

## Recording & Statistics Service

There can be 2 instances of the Recording & Statistics service per logical contact center, with 1 instance per server. Only one service instance is active at any one time; the other instance is on standby.

## Sync Service

There can be 2 instances of the Sync service per logical contact center, with 1 instance per server. Only one service instance is active at any one time; the other instance is on standby.

The Sync service runs a full synchronization on startup. After startup, it sync changes based on events from the CTI Server.

## Voice-Over IP Monitor Service

One instance of the service is supported per Windows server. There can be 5 active VoIP Monitor services per logical contact center, and multiple VoIP Monitor services per CallManager cluster.

**NOTE:** If you install Cisco Security Agent (CSA), reboot the computer when prompted. If you do not reboot the computer at this time, CPU usage by the VoIP Monitor service may increase to 100% of CPU time. If the problem does occur, manually reboot the computer.

**Codecs**

The Voice-Over IP Monitor service supports G.711 u-law and a-law and G.729. Conversations using any codec other than G.711 and G.729 will not be available for monitoring. The codec that an IP phone uses is configurable in the Cisco CallManager.

**Packet Sniffing and Network Configuration**

The monitor service is H.323- and SIP (Standard Interface Protocol)- independent. Both of these protocols use the Real Time Transport Protocol (RTP) to transport voice. The monitor service looks specifically for RTP version 2 packets.

**NOTE:** The RTP packets must be carried over UDP (User Datagram Protocol), IPv4, and Ethernet II.

As a network switch will not normally deliver packets to Ethernet ports other than the destination (an IP phone, in this case), the switch must be configured to do so. The Ethernet port for the monitor service must be configured to monitor the Ethernet ports for all of the agent IP phones. If the voice packets to and from an agent's IP phone are not sent to the monitor service's port for any reason, that conversation will not be available to the supervisor.

When a request is made to monitor or record an agent, the monitor service looks up the MAC address of the agent's IP phone in the CallManager database. The monitor service then looks for packets to and from this MAC address, and if it is an RTP packet, it is forwarded to Supervisor Desktop (for monitoring) or to the Recording & Playback service (for recording).

It is not enough for the monitor service to monitor a port that all voice traffic goes through, such as the Ethernet port to which a gateway to the PSTN is connected. The monitor service must monitor the Ethernet ports that the IP phones are directly connected to. This is because MAC addresses change as packets pass through OSI Layer 3 devices (e.g. routers).

The monitor service sniffs packets on a single NIC (network interface card), and therefore a single Ethernet port. This port needs to be configured to monitor the Ethernet ports of all agent IP phones. This does not necessarily require that the monitor service and all agent IP phones be connected to the same network switch. That depends on the monitoring capabilities of the network switch.

**NOTE:** The VoIP Monitor service does not support hubs.

Cisco Catalyst switches use SPAN (switched port analyzer) to monitor ports. Some of the capabilities and restrictions of Catalyst switches are:

### **Catalyst 2900XL and 3500XL Switches**

- A monitor port cannot be in a Fast EtherChannel or Gigabit EtherChannel port group.
- A monitor port cannot be enabled for port security.
- A monitor port cannot be a multi-VLAN port.
- A monitor port must be a member of the same VLAN as the port monitored. VLAN membership changes are disallowed on monitor ports and ports being monitored.
- A monitor port cannot be a dynamic-access port or a trunk port. However, a static-access port can monitor a VLAN on a trunk, a multi-VLAN, or a dynamic-access port. The VLAN monitored is the one associated with the static-access port.
- Port monitoring does not work if both the monitor and monitored ports are protected ports.

### **Catalyst 4000, 5000, and 6000 Series Switches**

- You can monitor ports belonging to multiple VLANs on these switches.
- The Catalyst 6000 with CatOS 5.3 or higher has a feature called Remote SPAN (RSPAN) which allows you to monitor ports spread over a switched network. With RSPAN on a Catalyst 6000, the monitor service and IP phones can be on separate switches.

For more information on SPAN limitations, see the web document “Configuring the Catalyst Switched Port Analyzer (SPAN) Feature” at:

[www.cisco.com/warp/public/473/41.html](http://www.cisco.com/warp/public/473/41.html)

## Directory Services Replication/Synchronization

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### The replication process

The Cisco Desktop LDAP Monitor service manages setting up the configuration for Directory Services replication and resynchronizing the Directory Services data.

Whenever a second CRS engine is activated in CRS Administration, replication setup and synchronization occurs. This process takes up to 5 minutes (depending on the size of Directory Services and the network performance between the two machines). During this process, Directory Services is temporarily unavailable even though it is shown as “started” in the Windows Services window and “active” in CRS Administration.

Whenever one of the CRS engines is deactivated in CRS Administration, the replication teardown process occurs. Directory Services becomes temporarily unavailable during this process, just as it does during the setup/synchronization process. The teardown process takes approximately one minute or less.

To avoid corrupting Directory Services, **do not**:

- Shut down the Cisco Desktop LDAP Monitor service during the replication/synchronization setup or teardown process.
- Deactivate a Cisco Unified Contact Center Express node before the replication/synchronization setup process is completed on a Cisco Unified Contact Center Express node you have just activated.

### How can you tell if Directory Services is corrupted?

Indications that Directory Services has become corrupted are:

- The Cisco Desktop LDAP Monitor service is running, but the slapd process from Task Manager is not.
- The LDAPMonSvr.log displays a message that DBRecovery (database recovery) has failed.

### How can you correct a corrupted Directory Services?

To correct a corrupted Directory Services database, follow these steps:

1. Stop the Cisco Desktop LDAP Monitor service on both the machine hosting the corrupted Directory Services database and the machine hosting the replicated, uncorrupted Directory Services database.
2. On the machine hosting the corrupted Directory Services database, remove all files from the folder **.../Desktop/database**.
3. On the machine hosting the uncorrupted Directory Services database, copy all files from the folder **.../Desktop/database** and then paste them into the same folder on the machine hosting the corrupted database.

4. Restart the Cisco Desktop LDAP Monitor service on both machines.

**Reading the LDAPMonSvr.log**

The LDAPMonSvr.log file records the start and end time of a replication/resynchronization cycle. Consult this log file to find out the amount of time your system takes to carry out this process.

The following are examples of the start and end time entries in the LDAPMonSvr.log file:

```
13:32:56 09/08/2004 INFO  LM0000 Replication request from :192.168.252.65_
204402064532456
```

```
13:33:08 09/08/2004 INFO  LM0000 Replication request from :192.168.252.65_
204402064532456 successful
```

## Service Autorecovery

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### Fault Tolerance

CAD 6.4 uses the “warm standby” approach to fault tolerance and autorecovery. No manual intervention is required to recover a failed service.

Data and features might be lost at the time of the failure. For instance:

- Active monitoring is stopped. It can be restarted manually after the failover.
- Enterprise data for the call in progress is lost at the time of the failure.

All CAD features are fault-tolerant to a single point of failure with several exceptions. They are:

- Playback. Recordings are tied to a specific service, and thus are not replicated.
- SPAN-based monitoring and recording. Desktop monitoring can be used for CAD agents if fault tolerance is required.

CAD uses LDAP replication to provide fault tolerance for configuration information, such as work flows, agent hot seat settings, and so on. It uses MSDE merge replication to provide fault tolerance for Recording & Statistics service-related data, such as call logs, agent state logs, recording logs, and so on.

A subset of the base services fail over together. These services will either all be active or all be inactive on the same box:

- Chat service
- Enterprise service
- LRM service
- Sync service
- Recording & Statistics service
- IP Phone Agent service

### Agent Desktop and Supervisor Desktop

The service autorecovery feature enables Agent Desktop and Supervisor Desktop to automatically recover their connections to the Cisco Desktop services in the case of a service restart or a network outage.

When Agent Desktop or Supervisor Desktop detects that it is unable to communicate with a service (generally within one minute of the service failure), the application

status bar displays “Partial Service” or “No Service” to indicate some or all of the services have failed.

When Agent Desktop or Supervisor Desktop detects that the service is again available (usually within one minute of service recovery), the status bar displays “In Service” to indicate the services have recovered.

To learn more about what is affected by the service failure, double-click the status message on the status bar. The application displays a popup box that lists the application features and indicates if that feature is available or not due to the service outage.

## IP Phone Agent Service

The IP Phone Agent service pushes an error screen to all the logged in IP phone agents when it detects a failover in Cisco Unified Contact Center Express. During the time it is unable to communicate with Cisco Unified Contact Center Express, any attempt to change agent state or perform other IP Phone Agent functionality returns the service error screen.

Once the IP Phone Agent service is able to reconnect to Cisco Unified Contact Center Express, it pushes either of the following screens to the agent’s phone:

- the Login screen, if the agent is not logged into Cisco Unified Contact Center Express
- the Skill Statistics screen, if the agent is still logged into Cisco Unified Contact Center Express

## VoIP Monitor Service

VoIP Monitor service recovery is a special case, since more than one VoIP Monitor service can be installed in a single logical contact center. Supervisor Desktop is notified when one VoIP Monitor service in a multiple VoIP Monitor service configuration goes down. However, agent monitoring is not disabled because it is not possible to tell which agents are monitored by which VoIP Monitor service. The only indication a supervisor receives that a particular agent is assigned to the downed VoIP Monitor service is an error message when attempting to monitor that agent.

**NOTE:** This does not apply to desktops with desktop monitoring enabled.



## Guidelines for Sizing Deployments

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Service capacities vary based on the total number of agents in a contact center and whether or not silent monitoring and recording are required.

**NOTE:** The following guidelines are based on testing with a combination of real and simulated agents.

### Component Sizing

The Cisco Desktop base services consist of a set of services that run as NT services. The base services include:

- Chat service
- Directory Services
- Enterprise service
- IP Phone Agent service
- Cisco Desktop LDAP Monitor service
- LRM service
- Recording & Statistics service
- Sync service

There are other services that can be placed on the same or separate computer as the base services. These include:

- Voice-Over IP Monitor service
- Recording & Playback service

A set of the base services plus the additional services is a logical contact center, or LCC.

The maximum number of agents that can be supported by a single LCC is 300 (approximately 4,500 Busy Hour Call Completion [BHCC] with a call volume of 20 calls per agent per hour).

### Voice-Over IP Monitor Service

**NOTE:** Agent desktops can be monitored at the desktop (“desktop monitoring”) as well as by a VoIP Monitor service (“server monitoring”). The following information applies to installations where VoIP Monitor services are used to monitor one or more agents.

The Voice-Over IP (VoIP) Monitor service monitors the RTP streams spanned on the local switch. It uses a SPAN port to sniff each RTP stream that might potentially be monitored by a supervisor. All streams are monitored all the time. The maximum number of simultaneously monitored sessions (the total number of supervisors actively monitoring agents plus the number of concurrent recording sessions) is 40 (80 RTP streams).

The VoIP Monitor service application must be at the same physical location as the agents it monitors. A physical location is defined as a set of interconnected switches with no intervening routers or hubs. Deployments with agents at multiple sites must provision for a VoIP Monitor service application at each site.

The VoIP Monitor service application is certified for both uni-processor and multi-processor machines.

The VoIP Monitor service application is sized based on a combination of active calls and total streams being monitored by the service. For example, if the percentage of time that agents are actually talking is low, more streams may be monitored. If agents are on the phone most of the time, fewer streams may be monitored.

The number of sessions monitored by supervisors is fixed at 40 total simultaneous sessions.

### **Desktop Monitoring**

Desktop monitoring requires more bandwidth of a CAD instance than does server monitoring (using a VoIP Monitor service). Please refer to the best practices document, *Cisco Agent Desktop Bandwidth Requirements*, for more information.

There is no limit to the number of agents who can use desktop monitoring—all the agents in a LCC may use desktop monitoring.

### **Recording & Playback Service**

The Recording and Playback Service stores recorded conversations and makes them available to the Supervisor Record Viewer application.

A co-resident Recording & Playback service can support up to 32 simultaneous recordings. A dedicated Recording & Playback service can support up to 80 simultaneous recordings (this option is available in the Premium version only). The capacity of the Recording & Playback service is not dependent on the CODEC used.

### **Example**

Assumptions:

- 10-hour working day
- 20 calls per agent per hour (average handle time [AHT] 180 seconds: 120 seconds per call with a 60-second wrapup)

- 8% of calls, or 16 call per agent per day, are recorded
- Service level of 90% of calls answered in 10 seconds
- Agent:supervisor ratio is 10:1

Agent resources are calculated using an Erlang C computation.

Recording resources are calculated using the above assumptions and an Erlang B computation, assuming 0.001 blockage. In the case of recording, there will not be actual blockage, instead, an additional recording resource will be used.

A formula for simultaneous recording resources needed in the busy hour based on percentage of calls monitored can be calculated as follows:

(BHCC = busy hour call completion)

$$\left( \frac{\text{BHCC}}{\text{hour}} \right) \times (\% \text{ Recorded}) \times \left( \frac{2 \text{ min}}{\text{call}} \right) \times \left( \frac{1 \text{ hour}}{60 \text{ min}} \right) = \text{req sim recording resources}$$

$$\frac{\text{BHCC} \times \% \text{ Recorded}}{30} = \text{required simultaneous recording resources}$$

In a contact center with 1000 calls per hour and an 8% call recording rate, the recording Erlang is:

$$\frac{1000 \times 0.08}{30} = 2.667$$

Using an Erlang B calculator with 0.001 blocking, this contact center requires no more than 10 simultaneous recording resources.

The following table summarizes the number of agents and simultaneous recording resources required for BHCC values from 1,000–4,000 with an 8% call recording rate.

BHCC	No. Agents	No. Supervisors	Simultaneous Recording Resources Required
1,000	59	6	10
2,000	112	11	14
4,000	215	22	22

## Coresidency Options

The base services are coresident on a CRS server.

No. Agents	Base services plus Recording & Playback service	VoIP Monitor Service
up to 100	coresident on CRS server	coresident on CRS server
101–300	coresident on CRS server	dedicated server

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## Technical Package Information

# 3

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### **Service Connection Types and Port Numbers**

Consult the *Cisco CRS (IP IVR and IPCC Express) Port Utilization Guide* for a complete listing of ports and connection types used in CAD 6.4.

## Registry Entries

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### Site Setup

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Site Setup

**Table 1.** Site setup registry entries

Key	Value	Type	Description
Site Setup	Install Directory	string	Base install directory for Cisco software
	IOR Hostname	string	Hostname or IP address of Cisco services
	LDAP Bind DN	string	User ID used to log in to the LDAP service. Default = cn=Cient, ou=People, o=Spanlink Communications.
	LDAP Connection Timeout	dword	Maximum time, in seconds, before a connection attempt times out. Default = 15.
	LDAP Heartbeat Enabled	dword	Is heartbeat enabled? 1=yes, 0=no. Default = 1.
	LDAP Heartbeat Retry Time	dword	Heartbeat time, in milliseconds. Default = 10000.
	LDAP Host 1	string	LDAP service hostname/IP address. There can be multiple LDAP hosts.
	LDAP LCC	string	Default logical contact center
	LDAP Port 1	dword	LDAP service port. There can be multiple LDAP ports. Default = 38983.
	LDAP Pwd	string	Encrypted user password
	LDAP Recovery Retry Time	dword	Recovery retry time, in milliseconds. Default = 3000.
	LDAP Request Timeout	dword	Maximum time, in seconds, before an LDAP request times out. Default = 15.

Table 1. Site setup registry entries — Continued — Continued

Key	Value	Type	Description
	LDAP Root	string	Root of the LDAP data. Default = o=Spanlink Communications.
	Serial Number	string	Counter to indicate changes to site setup values. Default = 0.
	CALLCENTERLANG	string	Language selected during installation.
	INSTALLDIR	string	Parent directory of base install directory for Cisco software.
	MONITOR DEVICE	string	Network card on which to sniff packets.

## Agent Desktop

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Agent\

Table 2. Agent Desktop registry entries

Key	Value	Type	Description
Config	App Version	string	Used by installation scripts to identify the version of the service software. The service itself does not use this entry
	Update Version	string	Future use: tracks any hot fixes installed
	Shortcut icon path	string	Location of the start shortcut under StartMenu > Programs
	Type	string	Type of telephony switch the system is running under

Table 2. Agent Desktop registry entries — *Continued*

Key	Value	Type	Description
Desktop Monitoring	IOR Hostname	string	Host name or IP address of the agent's desktop. Reserved for future use.
	Monitor Device	string	NIC adaptor used by the WinPcap software to sniff VoIP traffic for monitoring and recording agent calls. It is set automatically at installation to the first available adaptor found that can be used by the WinPcap driver.
	OmniOrbUsePort	unsigned long	Port that the desktop monitor process listens on for CORBA calls from clients. Default = 59002.
	VpnUsePort	unsigned long	Port used to communicate with a VPN server located on the same machine as a VoIP Monitor service. If none found, uses the default value defined in fcvmsTypes.h.



## Enterprise Service

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Enterprise Server\

**Table 3. Enterprise Service registry entries**

Key	Value	Type	Description
Setup	Max Wait Time <sup>*</sup>	dword	Maximum time, in milliseconds, to wait for enterprise data. Default = 100.
	Initial Time <sup>*</sup>	dword	Number of milliseconds to wait after the first request for enterprise data, if data is not guaranteed. Default = 10.
	Increment <sup>*</sup>	dword	Number of milliseconds to add to the retry time at each interval, if data is not guaranteed. Default = 20.
	Retry Sleep Interval <sup>*</sup>	dword	Number of milliseconds used to calculate the interval for retry attempts, if call is not known to enterprise. The interval is calculated by (retry sleep interval × retry attempt). Default = 150.

\* These registry keys need to be created only if there are timing issues when an agent requests data from the Enterprise service and the Enterprise service does not have the data yet.

## IP Phone Agent Service

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\IPPA\

**Table 4. IP Phone Agent service registry entries**

Key	Value	Type	Description
Config	TOMCAT HOME	string	Location of the Tomcat web server files. Default = C:\Program Files\wfaavid\tomcat_appadmin\

## LRM Service

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\LRM Server\

Table 5. LRM Service registry entries

Key	Value	Type	Description
Config	App Version	string	Used by installation scripts to identify the version of the service software. The service itself does not use this entry.
	Update Version	string	Future use: tracks any hot fixes installed

## Recording & Playback Client

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Recording & Playback Client\

Table 6. Recording & Playback Client registry entries

Key	Value	Type	Description
Setup	Jitter Buffer	dword	The amount of voice data to buffer before playing. Default value = 1000 ms. On a typical internal network, this value can be set as low as 50 ms. The default is set higher so that the sound quality is good even on a congested network.
	From Client Port	dword	
	Port Range End	dword	
	Port Range Start	dword	
	Sound Buffers	dword	
	To Client Port	dword	
	VPN Port	dword	

## Recording & Playback Service

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Recording & Playback Server\

Table 7. Recording & Playback Service registry entries

Key	Value	Type	Description
Config	Update Version	string	Future use: tracks any hot fixes installed
	Audio Directory	string	
	IOR HostName	string	
	Maximum Playback	dword	
	Maximum Recordings	dword	
	OmniOrbUsePort	dword	

## Recording & Statistics Service

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\RASCAL Server\

Table 8. Recording & Statistics service registry entries

Key	Value	Type	Description
Config	DB Script Message	string	Error message used by technical support for troubleshooting.
	DB Script Result	string	The Boolean result returned after running the Recording and Statistics service set up script. 1 = Completed successfully. 0 = error.

## Supervisor Desktop

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Supervisor\

**Table 9.** Supervisor Desktop registry entries

Key	Value	Type	Description
Config	App Version	string	Used by installation scripts to identify the version of the service software. The service itself does not use this entry
	Update Version	string	Future use: tracks any hot fixes installed
	Shortcut Icon Path	string	Location of the start shortcut under StartMenu > Programs
	Type	string	Type of telephony switch the system is running under

## Sync Service

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Sync Server\

**Table 10.** Sync service registry entries

Key	Value	Type	Description
Config	Update Version	string	Future use: tracks any hot fixes installed

## Voice-Over IP Monitor Client

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\VoIP Monitor Client\

**Table 11.** Voice-Over IP Monitor Client registry entries

Key	Value	Type	Description
Config	FROM AGENT PORT	dword	IP port for RTP stream being sent from IP agent. Default value = 59012. Port must be an even number. The next port is reserved for RTCP stream.
	JITTER BUFFER	dword	The amount of voice data to buffer before playing. Default value = 400 ms. On a typical internal network this value can be set as low as 50 ms. The default is set higher so the sound quality is good even on a congested network.
	SERVER HOST	string	Host name of the VoIP service.
	SOUND BUFFERS	dword	Number of sound card buffers. Default = 30; minimum is 3. If the monitor sound quality is choppy, stuttering, or like a motorboat you might be able to make it sound better by adjusting this value higher. Setting the value higher increases the sound lag, and might cause a slight stutter at the beginning of a monitor session.
	TO AGENT PORT	dword	IP port for RTP stream being sent to Agent IP Phone. Default value = 59010. The port must be an even number. The next port is reserved for RTCP stream.

## Voice-Over IP Monitor Service

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\VoIP Monitor Server\

**Table 12.** Voice-Over IP Monitor Service registry entries

Key	Value	Type	Description
Config	App Version	string	Used by installation scripts to identify the version of the service software. The service itself does not use this entry
	Update Version	string	Future use: tracks any hot fixes installed
	Monitor Device	string	Network card on which to sniff packets

## Voice-Over IP Monitor Record Client (Optional)

These registry entries should not be needed because the Voice-Over IP Monitor Record API has built-in defaults. They can be used to override the defaults.

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\VoIP Monitor Client

**Table 13.** Voice-Over IP Monitor Record Client registry entries

Key	Value	Type	Description
Setup	Recording Jitter Buffer	dword	The number of milliseconds that a packet expires for recording.
	Recording Port Range Start	dword	The starting port number for receiving UDP packets for recording.
	Recording Port Range End	dword	The end port number for receiving UDP packets for recording.

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## Event/Error Logs

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Logs are listings of CAD events and errors.

Events may represent the following:

- Actions taken by a Desktop application
- Implications of user-defined configuration settings
- Limitations of the hardware

Error codes are brief descriptions of system events.

Error and event logging is always enabled. The log files are limited to a default of 3 MB. (You may change the limit in the application's configuration file. When a log file reaches that size, it is closed and a new file is started.

The files are numbered, up to the total number of files set in the configuration file (the default number is 2). For example:

- agent0001.log
- agent0002.log

When agent0001.log reaches its size limit, it is closed and agent0002.log is created. When the total number of log files have been created, the first log file is overwritten.

IPPA JSP client log files are numbered, up to the total number of files set in the configuration file. The file without an appended number is the current file, and the file with the highest number is the oldest. For example:

- TIAJ.log
- TIAJ.log.1
- TIAJ.log.2

CAD generates the following error and event logs:

**Table 1. CAD Event/error logs**

<b>Log Name</b>	<b>Records Events and Errors In:</b>
administrator.log	Desktop Administrator–Desktop Configuration module
agent.log	Agent Desktop
CDBRTool.log	Backup and Restore utility
CTI Storage Server.log	Enterprise service
db.cra_repl_add.sql.log	Recording & Statistics service
db.cra_repl_base.fcrassvr.sql.log	Recording & Statistics service
db.cra_utils_base.fcrassvr.sql.log	Recording & Statistics service
db.createdbadmin.sql.log	Recording & Statistics service
db.instrasdb.fcrassvr.sql.log	Recording & Statistics service
db.lockdown.sql.log	Recording & Statistics service
db.memcap.sql.log	Recording & Statistics service
db.splk_repl_base.sql.log	Recording & Statistics service
DirAccessSynSvr.log	Sync service
FCCServer.log	Chat service
FCRasSvr.log	Recording & Statistics service
fcuninstall.log	CAD uninstall process
FCVoIPMonSvr.log	Voice-Over IP Monitor service
IPCCAdm.log	Desktop Administrator–IPCC Configuration module
IPPASvr.log	IP Phone Agent service
LDAPMonSvr.log	Cisco Desktop LDAP Monitor service
LicensingAdmin.log	License Administrator
LRMServer.log	LRM service
Personnel.log	Desktop Administrator–Personnel Configuration module
PostInstall.log	CAD Configuration Setup



Table 1. CAD Event/error logs – *Continued*

Log Name	Records Events and Errors In:
RPServer.log	Recording & Playback service
slapd.log	Directory Services service
slurpd.log	Directory Services replication service
SMC.log	Cisco Desktop Monitoring Console
SMCGetServerList.log	Cisco Desktop Monitoring Console
Splkview.log	Desktop Administrator–framework
supervisor.log	Supervisor Desktop and Supervisor Record Viewer
SWFAdmin.log	Supervisor Workflow Administrator
TIAJ.log	IP Phone Agent service JSP client
TSSPAdm.log	Desktop Administrator–Enterprise Data Configuration module
WorkflowEngine.log	Enterprise service

## Debugging

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### Debugging Logs

CAD can create debugging logs, although by default this capability is disabled. If you want debugging turned on, you must edit the appropriate configuration file.

**NOTE:** When upgrading from CAD 6.4(1) to CAD 6.4(2), any configuration files you edited revert to their default settings.

Debugging information is written to the various debug files, all of which have a \*.dbg suffix. These files are located in the ...\\Cisco\\Desktop\\log directory.

The debug files are numbered, up to the total number of files set in the configuration file (the default number is 2). For example:

- agent0001.dbg
- agent0002.dbg

When agent0001.dbg reaches its size limit, it is closed and agent0002.dbg is created. When the total number of debug files have been created, the first debug file is overwritten.

#### *To turn on debugging:*

1. Open the appropriate configuration file.
2. Under the section headed [Debug Log], set the debugging threshold to an appropriate value. For example:  
  
THRESHOLD=DEBUG
3. Save the configuration file with the new setting.

### Debugging Thresholds

When setting the debugging threshold, keep in mind that the more detail the threshold provides, the slower the performance of your PC and increases the size of the debug file.

The available debugging thresholds are:

**Table 2. Debugging Thresholds**

Threshold	Records:
Debug	<ul style="list-style-type: none"> <li>• Minor and frequently-occurring normal events. This level is usually sufficient for debugging a problem, and will not affect the computer's performance.</li> </ul>
Call	<ul style="list-style-type: none"> <li>• Minor and frequently-occurring normal events</li> <li>• Entering and exiting functions</li> </ul>
Trace	<ul style="list-style-type: none"> <li>• Minor and frequently-occurring normal events</li> <li>• Entering and exiting functions</li> <li>• Detail debugging (for instance, loops)</li> </ul>
Dump	<ul style="list-style-type: none"> <li>• Minor and frequently-occurring normal events</li> <li>• Entering and exiting functions</li> <li>• Detail debugging (for instance, loops)</li> <li>• Byte dumps</li> </ul>
Off	Turns off debugging. This is the default setting.

### Debugging for the IP Phone Agent Client

The Cisco IP Phone Agent Client is a JSP application with its own debug methods. The configuration file that controls debugging does not follow the CAD standard debugging thresholds.

The configuration file is located on the computer where the CAD services are installed, at:

C:\Program Files\vvfavvid\tomcat\_appadmin\conf\TIAJ.cfg

#### *To turn on debugging:*

1. Open the TIAJ.cfg file in a text editor.
2. Locate the line:  
log4j.rootLogger=info, R
3. Replace info with one of the options listed in [Table 2](#).
4. Save the configuration file with the new setting.

## Configuration Files

The following configuration files can be edited to turn on threshold debugging:

**Table 3. CAD configuration files**

Application/Service	Configuration File
Backup and Restore utility	CDBRTool.cfg
IP Phone Agent Service	IPPASvr.cfg
Chat Service	FCCServer.cfg
Cisco Agent Desktop	agent.ini
Cisco Desktop Administrator	admin.ini
Framework module	SplkView.cfg
Enterprise Data Configuration module	TSSPAdm.cfg
IPCC Configuration module	IPCCAdm.cfg
Personnel Configuration module	personnel.cfg
Cisco Supervisor Desktop	supervisor.ini
Directory Services	slapd.cfg
Directory Services Replication	slurpd.cfg
Enterprise Service	ssCTIConfig.cfg
IP Phone Agent client	TIAJ.cfg
File is located under C:\Program Files\vvfavvid\tomcat_appadmin\conf\	
Cisco Desktop LDAP Monitor service	LDAPMonSvr.cfg
LRM Service	LRMServer.cfg
Recording & Playback Service	RPServer.cfg
Recording & Statistics Service	FCRasSvr.cfg
Supervisor Record Viewer	supervisorlogviewer.ini
Supervisor Workflow Administrator	SWFAdmin.cfg
Sync Service	DirAccessSynSvr.cfg
VoIP Monitor Service	FCVoIPMonSvr.cfg

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## Error Codes

# 5

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### Error Messages

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Error messages are classified by the level of severity of the error. These levels are:

- **Fatal.** The program cannot continue.
- **Error.** The program has suffered a loss of functionality, but it continues to run.
- **Warn.** There is a malfunction that is a nuisance but that does not interfere with the program's operation.
- **Informational.** Not an error, this is related information that might be useful for troubleshooting.

**NOTE:** In this table, **[LN]** refers to the program line number that generates the error.

Table 1. Error codes and descriptions

Error No.	Description
AP [LN]	<div>Text: Action Index Corrupt.</div> <div>Type: Warn</div> <div>Add'l Info: The actions configured in Administrator might be corrupt.</div> <div>Action: Check the Work Flow actions in Administrator.</div>
AP [LN]	<div>Text: Action List Corrupt.</div> <div>Type: Warn</div> <div>Add'l Info: The actions configured in Administrator might be corrupt.</div> <div>Action: Check the Work Flow actions in Administrator.</div>

Table 1. Error codes and descriptions

Error No.	Description
AP [LN]	<p>Text: Event not found [event type].</p> <p>Type: Warn</p> <p>Add'l Info: The events configured in Administrator might be corrupt.</p> <p>Action: Check the Work Flow events in Administrator.</p>
AP [LN]	<p>Text: EventList has reached 15.</p> <p>Type: Warn</p> <p>Add'l Info: Something is stopping events from getting processed in Agent.</p> <p>Action: Check log file for errors.</p>
AV [LN]	<p>Text: Silent Monitor session failed.</p> <p>Type: Error</p> <p>Add'l Info: Unable to silent monitor the agent.</p> <p>Action: Cisco Supervisor Desktop is not receiving any voice from the agent's IP phone.</p> <p>If you are using Desktop Monitor for monitoring, possible causes for this problem are:</p> <ol style="list-style-type: none"> <li>1. The agent selected for monitoring has logged on to an IP hard phone that is not connected to the agent desktop system.</li> <li>2. The network adapter card in the agent's computer is not compatible with CAD desktop Monitor in a network environment where data and voice are on separate VLANs.</li> </ol> <p>If you are using a VoIP Monitor service for monitoring, possible causes for this problem are:</p> <ol style="list-style-type: none"> <li>1. You might not have the SPAN port set up correctly.</li> <li>2. You might not have the IP phone assigned to the correct VoIP Monitor service.</li> </ol> <p>Contact your system administrator.</p>

Table 1. Error codes and descriptions

Error No.	Description
AW [LN]	<p>Text: Unable to get RASCAL global ID for agent state change.</p> <p>Type: Warn</p> <p>Add'l Info: Could not obtain global ID from the Agent Statistics service.</p> <p>Action: Verify that the Agent Statistics service is running.</p>
AW [LN]	<p>Text: Unable to update wrapup data to RASCAL: no global ID.</p> <p>Type: Warn</p> <p>Add'l Info: Could not write data to the Agent Statistics service.</p> <p>Action: Verify that the Agent Statistics service is running.</p>
AW [LN]	<p>Text: Unable to write agent state change to RASCAL GID=[global ID] Error=[error].</p> <p>Type: Warn</p> <p>Add'l Info: Could not write data to the Agent Statistics service.</p> <p>Action: Verify that the Agent Statistics service is running.</p>
AW [LN]	<p>Text: Unable to write call data to RASCAL GID=[global ID] Error=[error].</p> <p>Type: Warn</p> <p>Add'l Info: Could not write data to Recording &amp; Statistics service.</p> <p>Action: Verify that the Recording &amp; Statistics service is running.</p>
CA [LN]	<p>Text: Unable to attach to CallChat application</p> <p>Type: Warn</p> <p>Add'l Info: Emergency Chat messages to supervisor and Skill statistics on the Supervisor desktop will be unavailable.</p> <p>Action: From a command prompt, go to the Desktop bin directory and run the command <b>regsvr32 fastcallserverproxy.dll</b>.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>EI [LN]</b>	Text: Delim ToData Error: [enterprise service error]. Type: Warn Add'l Info: While processing enterprise data, received an error. Action: Verify that the Enterprise service is running.
<b>EI [LN]</b>	Text: Enterprise error: Get data types for callID [call ID]. Error: [error]. Type: Error Add'l Info: Unable to get enterprise data for the current call. Action: Verify that the Enterprise service is running.
<b>EI [LN]</b>	Text: GetCallInfoList Error: [error] Type: Error Add'l Info: Unable to get enterprise data for the current call. Action: Verify that the Enterprise service is running.
<b>FC [LN]</b>	Text: Unable to connect to Directory Services; [error] Type: Fatal Add'l Info: Either the Directory Services parameters are incorrect or Directory Services are unavailable. Action: See the system administrator.
<b>FCCS1000</b>	Text: Unable to open registry: HKEY_LOCAL_MACHINE\SOFTWARE\Spanlink\CAD\Site Setup Type: Fatal Add'l Info: The Chat service was unable to read the value from the registry. The entry should have been created on install. Action: Reinstall if the entry is not in the registry.
<b>FCCS1001</b>	Text: Unable to create thread (%s). Type: Fatal Add'l Info: Text: Check system resource availability (CPU and memory).



Table 1. Error codes and descriptions

Error No.	Description
<b>FCCS1002</b>	Text: Unable to start any working threads. Type: Fatal Add'l Info: Text: Check system resource availability (CPU and memory).
<b>FCCS1003</b>	Text: Error handling command line arguments. Type: Fatal Add'l Info: Action: If you are attempting to run this program from the command line, check the command line usage. Normally this program should only be run as a service, but TAC or DE may advise you to run it as a console application.
<b>FCCS1007</b>	Text: Unexpected error. WaitForMultipleObjects failed (%s). Type: Fatal Add'l Info: Action: Check system resource availability (CPU and memory).
<b>FCCS1008</b>	Text: Unexpected network communication error (omniORB fatalException). File: %S, line: %d, msg: %S. Type: Fatal Add'l Info: Action: Check system resource availability (CPU and memory). Check network settings.
<b>FCCS1009</b>	Text: Unable to open registry key: %s. Type: Fatal Add'l Info: The specified registry key is required for the service to function properly. The installation may have failed or become corrupted. Action: If the registry entry does exist, check system resource availability (CPU and memory).

Table 1. Error codes and descriptions

Error No.	Description
<b>FCCS1010</b>	<p>Text: Unable to read registry value: %s.</p> <p>Type: Fatal</p> <p>Add'l Info: Action: The specified registry value is required for the service to function properly. The installation may have failed or become corrupted.</p> <p>Action: If the registry entry does exist, check system resource availability (CPU and memory).</p>
<b>FCCS1011</b>	<p>Text: Unable to initialize log files.</p> <p>Type: Fatal</p> <p>Add'l Info: The service was unable to set up its logging files.</p> <p>Action: Check the INSTALLATION DIRECTORY registry value under HKEY_LOCAL_MACHINE\SOFTWARE\Spanlink\CAD\Site Setup and verify that it is valid. Check the settings for the service in the service control panel and verify that it is running under the Local System account. Check system resource availability (CPU and memory).</p>
<b>FCCS1012</b>	<p>Text: Unexpected exception during network communication initialization (omniORB).</p> <p>Type: Fatal</p> <p>Add'l Info:</p> <p>Action: Action: Verify that the HKEY_LOCAL_MACHINE\SOFTWARE\Spanlink\CAD\Site Setup\IOR HOSTNAME registry value specifies a valid local hostname or IP address. Check system resource availability (CPU and memory).</p>
<b>FCCS1013</b>	<p>Text: Unexpected exception in the main network communication thread (fcCorbaServer).</p> <p>Type: Fatal</p> <p>Add'l Info:</p> <p>Action: Check system resource availability (CPU and memory).</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCCS2000</b>	<p>Text: Registry error (DetectRegistryChg::Open). Unable to open path &lt;%s&gt; key &lt;%s&gt;: &lt;%d&gt;.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: The service will automatically retry the operation. The specified registry key is required for the service to function properly. If the condition continues to occur, the installation may have failed or become corrupted. If the registry entry does exist, check system resource availability (CPU and memory).</p>
<b>FCCS2001</b>	<p>Text: Unable to connect to the LDAP service.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Verify that the Cisco Desktop LDAP Monitor service is running. Check the Cisco Desktop LDAP Monitor service logs for errors.</p>
<b>FCCS2002</b>	<p>Text: Unable to create a new working thread.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Check system resource availability (CPU and memory).</p>
<b>FCCS2003</b>	<p>Text: Unexpected exception in a working thread.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Check system resource availability (CPU and memory).</p>
<b>FCCS2004</b>	<p>Text: Unexpected exception in the manager thread.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Action: Check system resource availability (CPU and memory).</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCCS2008</b>	<p>Text: Network communication error &lt;%s&gt; sending message to application &lt;%s&gt;. The application will be logged out.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Text: Check network connectivity between the Chat service and the indicated application (typically an agent or supervisor) in both directions. The remote application may have terminated abnormally, check its logs for errors. Check any firewall settings to make sure that the proper ports are open.</p>
<b>FCCS2009</b>	<p>Text: Unexpected exception (%s).</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Check system resource availability (CPU and memory).</p>
<b>FCCS2010</b>	<p>Text: Unable to open registry key: %s.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: The specified registry key should exist, but the service will continue to function without it. The installation may have failed or become corrupted. If the registry entry does exist, check system resource availability (CPU and memory).</p>
<b>FCCS2011</b>	<p>Text: Unable to read registry value: %s.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: The specified registry value should exist, but the service will continue to function without it. The installation may have failed or become corrupted. If the registry entry does exist, check system resource availability (CPU and memory).</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCCS2012</b>	<p>Text: Unable to set the process priority for this service to high. The service will run at normal priority.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: The service will continue to run, and should run normally. However, in some cases under heavy server load it is possible that by running at normal priority the service will not get the needed CPU time to keep up with its tasks. The symptom for this would be sluggish behavior in CAD and CSD.</p>
<b>FCCS2013</b>	<p>Text: Unable to initialize the network communication library (%s). The service will continue to function, but VPN desktops will not be supported. Error code: %d.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Restart the service if you have any VPN desktops (CAD/CSD). If the condition continues to occur, check system resource availability (CPU and memory).</p>
<b>FCCS2014</b>	<p>Text: Unable to determine the local IP address. The service will continue to function, but VPN desktops will not be supported. Error code: %d.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Restart the service if you have any VPN desktops (CAD/CSD). If the condition continues to occur, check the network configuration and make sure the system has a valid IP address. If the network settings are valid, then check system resource availability (CPU and memory).</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCCS2015</b>	<p>Text: Unexpected network communication error in the VPN-support thread (%s). The service will continue to function, but VPN desktops will not be supported. Error code: %d.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: Restart the service if you have any VPN desktops (CAD/CSD). If the condition continues to occur, check the network configuration and make sure the system has a valid IP address. If the network settings are valid, then check system resource availability (CPU and memory).</p>
<b>FCCS3000</b>	<p>Text: Unable to close thread handle (%s).</p> <p>Type: Warn</p> <p>Add'l Info:</p> <p>Action: The service should continue to function normally. Check system resource availability (CPU and memory). Monitor handle usage by this service.</p>
<b>FCMC220</b>	<p>Text: [string] not found for recording handle: [handle]</p> <p>Type: Error</p> <p>Add'l Info: A request was made to stop a recording that was never started.</p> <p>Action: None.</p>
<b>FCMC221</b>	<p>Text: IDL function startSimultaneousMonitoring threw an exception. Host: [host], handle: [handle].</p> <p>Type: Error</p> <p>Add'l Info: The client was unable to communicate with a VoIP Monitor service.</p> <p>Action: Check the specified VoIP Monitor service for errors. Make sure the service is running.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCMC222</b>	Text: [string] not found for recording handle [handle] Type: Error Add'l Info: A request was made to stop a recording that was never started. Action: None.
<b>FCSS1</b>	Text: [error description]. Type: Error Add'l Info: CRS Node Manager database-related errors. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS-1</b>	Text: Failed to synchronize [LCC], [function], [problem], [error code] Type: Error Add'l Info: Failed to synchronize the logical contact center Action: Make sure the logical contact center exists. Make sure LDAP is running. Make sure ODBC connectivity is in place.
<b>FCSS10</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS11</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCSS12</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS-12</b>	Text: sync_server_exception: [description] Type: Error Add'l Info: Synchronization-related exception occurred (null pointer). Action: Handle according to the error description.
<b>FCSS13</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS15</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS16</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS-17</b>	Text: sync_server_exception: [description] Type: Error Add'l Info: Synchronization-related exception occurred (LDAP call). Action: Handle according to the error description.



Table 1. Error codes and descriptions

Error No.	Description
<b>FCSS-18</b>	Text: Standard exception. Type: Error Add'l Info: The program caught an unexpected standard library exception. Action: Retry the action. Restart the Sync service.
<b>FCSS-19</b>	Text: Failed to initialize [LCC], [function], [problem], [error code]. Type: Error Add'l Info: Failed to synchronize the logical contact center. Action: Make sure the logical contact center exists and that it has a peripheral ID. Make sure LDAP is running. Make sure ODBC connectivity is in place.
<b>FCSS2</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS20</b>	Text: [error description] Type: Error Add'l Info: LDAP-related error. Action: Handle according to the error description. Check the LDAP connection and registry settings.
<b>FCSS-20</b>	Text: sync_server_exception: [description] Type: Error Add'l Info: Synchronization-related exception occurred (SQL call). Action: Handle according to the error description.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCSS4504</b>	Text: A CORBA error with minor error of [error number] and completed flag of [flag] was caught. Type: Error Add'l Info: CORBA error. Action: Restart the Sync service.
<b>FCSS4512</b>	Text: The initialization of the Windows NT service was unsuccessful. Type: Fatal Add'l Info: Synchronization service initialization failed. Action: Restart the service. Check the LDAP connection. Persistence of the problem points to an installation or OS-related problem.
<b>FCSS4513</b>	Text: The Windows NT service is not able to register itself with the Windows NT service manager. Type: Fatal Add'l Info: The service could not register with the service manager. Action: Restart the service. Persistence of the problem points to an installation or OS-related problem.
<b>FCSS4532</b>	Text: Failed to create synchronization thread. Type: Error Add'l Info: Thread creation failed. Action: Restart service. Persistence of problem points to an installation or OS-related issue.
<b>FCSS4533</b>	Text: Changes with respect to the error location. Type: Error Add'l Info: Synchronization-related unexpected error. Action: Handle according to the error description.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCSS4534</b>	<p>Text: Failed to [add/update/delete] agent OR at least one error occurred during synchronization of agents.</p> <p>Type: Warn</p> <p>Add'l Info: Agent synchronization failed.</p> <p>Action: Check the ODBC connection. Check the LDAP connection.</p>
<b>FCSS4535</b>	<p>Text: Failed to [add/update/delete] Team OR failed to [get/set] TeamCQueues OR at least one error occurred during synchronization of teams</p> <p>Type: Warn</p> <p>Add'l Info: Team synchronization failed</p> <p>Action: Check the ODBC connection. Check the LDAP connection.</p>
<b>FCSS4536</b>	<p>Text: Failed to [add/update/delete] CQueue OR failed to get CQueues OR at least one error occurred during synchronization of queues.</p> <p>Type: Warn</p> <p>Add'l Info: Contact queue synchronization failed.</p> <p>Action: Check the ODBC connection. Check the LDAP connection.</p>
<b>FCSS5</b>	<p>Text: An unexpected error occurred.</p> <p>Type: Error</p> <p>Add'l Info: The program caught an unexpected exception.</p> <p>Action: Retry the action. Restart the Sync service.</p>
<b>FCSS6</b>	<p>Text: [error description]</p> <p>Type: Error</p> <p>Add'l Info: CRS Node Manager database-related error.</p> <p>Action: Handle according to the error description. Check the ODBC connection and database.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCSS7</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS8</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description Check the ODBC connection and database.
<b>FCSS-8</b>	Text: sync_server_exception: [description] Type: Error Add'l Info: A synchronization-related exception occurred (memory allocation). Action: Handle according to the error description.
<b>FCSS9</b>	Text: [error description] Type: Error Add'l Info: CRS Node Manager database-related error. Action: Handle according to the error description. Check the ODBC connection and database.
<b>FCSS-9</b>	Text: Unexpected exception. Type: Error Add'l Info: The program caught an unexpected exception. Action: Retry the action. Restart the Sync service.
<b>FCVMC200</b>	Text: GetServerList returned: [list]. Type: Error Add'l Info: The client was unable to retrieve the list of VoIP Monitor services from LDAP. Action: Check LDAP for errors.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMC201</b>	Text: No VoIP servers. Type: Error Add'l Info: No VoIP Monitor services are installed. Action: Install a VoIP Monitor service if you need silent monitoring and recording functionality.
<b>FCVMC202</b>	Text: hostName [hostname] doesn't exist in LRM server map. Type: Error Add'l Info: A VoIP Monitor service used in a monitoring request does not exist. Action: Check Directory Services for errors.
<b>FCVMC203</b>	Text: Unable to parse Monitor server host name from: [hostname]. Type: Error Add'l Info: The client was unable to determine the host name from the CORBA IOR. Action: Restart the VoIP Monitor service so that a new IOR is written to Directory Services.
<b>FCVMC204</b>	Text: Got an exception calling string_to_object(). Host: [host]. Type: Error Add'l Info: A CORBA object could not be created using the VoIP Monitor service's advertised IOR. Action: Restart the VoIP Monitor service so that a new IOR is written to Directory Services.
<b>FCVMC205</b>	Text: Got an exception calling_narrow(). Host: [host]. Type: Error Add'l Info: The client could not communicate with the VoIP service. Action: Restart the VoIP Monitor service.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMC206</b>	Text: No VoIP server installed or running. Type: Error Add'l Info: The client wasn't able to connect to any VoIP Monitor services. Action: If you need monitoring and recording functionality, make sure that you have a VoIP Monitor service installed and running.
<b>FCVMC207</b>	Text: Unable to connect to VoIP Monitor server: [server] for extensions: [extensions] Type: Error Add'l Info: The client was unable to communicate with the VoIP Monitor service. Action: Restart the VoIP Monitor service.
<b>FCVMC208</b>	Text: IDL function startMonitoring threw an exception [exception]. Host: [host], extension: [extension], supervisorid [ID], localAddress: [local address], toAgentPort: [agent port], fromAgentPort: [agent port]. Type: Error Add'l Info: The CORBA call to start a monitoring session failed. Action: Restart the VoIP Monitor service.
<b>FCVMC209</b>	Text: Unable to find host: [host] in the monitor server map. Type: Error Add'l Info: A request to stop a monitoring session used an unknown VoIP Monitor Service name in the request. Action: None.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMC210</b>	<p>Text: IDL function stopMonitoring threw an exception [exception]. Host: [host], supervisorID: [ID]</p> <p>Type: Error</p> <p>Add'l Info: The CORBA call to start a monitoring session failed.</p> <p>Action: Restart the VoIP Monitor service.</p>
<b>FCVMC211</b>	<p>Text: IDL function getPhoneMacAddress threw an exception [exception]. Host: [host], extension: [extension].</p> <p>Type: Error</p> <p>Add'l Info: The client could not get an extension's MAC address from the VoIP Monitor service.</p> <p>Action: Restart the VoIP Monitor service.</p>
<b>FCVMC212</b>	<p>Text: Unable to find the VoIP Monitor service for MAC address: [MAC address].</p> <p>Type: Error</p> <p>Add'l Info: There are multiple VoIP Monitor services and this device has not been assigned to one.</p> <p>Action: Use Desktop Administrator to assign the phone to a VoIP Monitor service.</p>
<b>FCVMC213</b>	<p>Text: Unable to connect to VoIP Monitor server: [service] for MAC address: [MAC address]</p> <p>Type: Error</p> <p>Add'l Info: The client is unable to connect to a VoIP Monitor service.</p> <p>Action: Check the specified VoIP Monitor service for errors. Make sure the service is running.</p>
<b>FCVMC214</b>	<p>Text: Unable to connect to VoIP Monitor service: [service] for extension: [extension]</p> <p>Type: Error</p> <p>Add'l Info: The client is unable to connect to a VoIP Monitor service.</p> <p>Action: Check the specified VoIP Monitor service for errors. Make sure the service is running.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMC215</b>	<p>Text: IDL function SetSoftPhoneFilter threw an exception. Host: [host], extensions: [extensions], destinationIpAddr: [IP address], destination RtpPort: [port], source RtpPort: [port].</p> <p>Type: Error</p> <p>Add'l Info: The client was unable to communicate with a VoIP Monitor service.</p> <p>Action: Check the specified VoIP Monitor service for errors. Make sure the service is running.</p>
<b>FCVMC216</b>	<p>Text: IDL function stopMonitoring threw an exception [exception]. Host: [host], supervisorId [ID]</p> <p>Type: Error</p> <p>Add'l Info: The CORBA call to start a monitoring session failed.</p> <p>Action: Restart the VoIP Monitor service.</p>
<b>FCVMC217</b>	<p>Text: IDS function special threw an exception. Host: [host], message: [message]</p> <p>Type: Error</p> <p>Add'l Info: The client was unable to communicate with a VoIP Monitor service.</p> <p>Action: Check the specified VoIP Monitor service for errors. Make sure the service is running.</p>
<b>FCVMC218</b>	<p>Text: Unable to connect to VoIP Monitor server: [service] for extension: [extension]</p> <p>Type: Error</p> <p>Add'l Info: The client was unable to communicate with a VoIP Monitor service.</p> <p>Action: Check the specified VoIP Monitor service for errors. Make sure the service is running.</p>



Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMC219</b>	<p>Text: IDL function startSimultaneousMonitoring threw an exception [exception]. Host: [host], agent extension: [extension], applicationId: [ID], localAddress: [IP address], toAgentPort: [port], fromAgentPort: [port].</p> <p>Type: Error</p> <p>Add'l Info: The CORBA call to start a recording session failed.</p> <p>Action: Restart the VoIP Monitor service.</p>
<b>FCVMC220</b>	<p>Text: Host: [host] not found for recording handle: [handle].</p> <p>Type: Error</p> <p>Add'l Info: A request to stop a recording session used an unknown VoIP Monitor Service name in the request.</p> <p>Action: None.</p>
<b>FCVMC221</b>	<p>Text: IDL function startSimultaneousMonitoring threw an exception [exception]. Host: [host], handle: [handle].</p> <p>Type: Error</p> <p>Add'l Info: The CORBA call to start a recording session failed.</p> <p>Action: Restart the VoIP Monitor service.</p>
<b>FCVMC222</b>	<p>Text: Host: [host] not found for recording handle [handle].</p> <p>Type: Error</p> <p>Add'l Info: An attempt to refresh a recording session failed because the VoIP Monitor service was not found.</p> <p>Action: None.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMC223</b>	<p>Text: IDL function refreshSimultaneousMonitoring threw an exception [exception]. Host: [host], recordingHandle: [handle].</p> <p>Type: Error</p> <p>Add'l Info: An attempt to refresh a recording session failed due to an exception in the VoIP Monitor service.</p> <p>Action: None.</p>
<b>FCVMC224</b>	<p>Text: Host [host] is under recovery.</p> <p>Type: Error</p> <p>Add'l Info: The client attempted an action with a VoIP Monitor service that was down. The connection is in recovery.</p> <p>Action: Retry the action after the recovery is complete.</p>
<b>FCVMS0000</b>	<p>Text: Could not initialize the connection to the CallManager database. AXL error: [error number: error string].</p> <p>Type: Error</p> <p>Add'l Info: The VoIP service could not communicate with CallManager through the AXL interface. As a result, it could not query the database.</p> <p>Action: Check the status of the CallManager processes. There must be at least one CallManager with an active AXL database service in the cluster.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS0001</b>	<p><b>Text:</b> Could not get the Mac address for extension [extension] from the CallManager database.</p> <p><b>Type:</b> Error</p> <p><b>Add'l Info:</b> The monitor service received a request to monitor an agent but was unable to retrieve the MAC address for the specified extension from CallManager's SQL server database.</p> <p><b>Action:</b> Perform the following actions:</p> <ul style="list-style-type: none"> <li>■ Check the CallManager database for changes.</li> <li>■ Verify the FCVoIP ODBC DSN is correct.</li> <li>■ Verify that the CallManager database is running.</li> <li>■ Verify that a record for the extension exists in the CallManager database.</li> <li>■ Reinstall the monitor service if it requires a new username or password.</li> </ul>
<b>FCVMS0004</b>	<p><b>Text:</b> Service connection IP address used by clients not found in Registry. Service initialization will not continue until the CAD configuration Setup application has been run to configure the software. (IOR Hostname).</p> <p><b>Type:</b> Error</p> <p><b>Add'l Info:</b> The VoIP Service is missing information required for start up.</p> <p><b>Action:</b> Complete the PostInstall.</p>
<b>FCVMS0005</b>	<p><b>Text:</b> NIC Monitoring adapter name not found in Registry. Service initialization will not continue until the CAD Configuration Setup application has been run to configure the software.</p> <p><b>Type:</b> The VoIP Service is missing information required for start up.</p> <p><b>Add'l Info:</b> Complete the PostInstall.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS0006</b>	Text: System error. Unable to start a necessary process: [process]. Type: Error Add'l Info: Action: Restart the VoIP Monitor service.
<b>FCVMS007</b>	Text: Unable to open the NIC adapter [adapter] for sniffing. Type: Error Add'l Info: Action: Check the configuration and restart the VoIP Monitor service.
<b>FCVMS0008</b>	Text: System error. The NIC adapter used for sniffing is not configured correctly. Type: Error Add'l Info: Action: Check the configuration and restart the VoIP Monitor service.
<b>FCVMS0009</b>	Text: System error. The filter used for capturing voice streams could not be set. Type: Error Action: Restart the VoIP Monitor Service.
<b>FCVMS0012</b>	Text: System error. Client interface could not be created. Retrying operation. (CORBA). Type: Error Add'l Info: The VoIP service could not start the CORBA interface. VoIP is attempting to restart CORBA. Clients cannot connect until CORBA is started. Action: None.
<b>FCVMS0017</b>	Text: Could not determine the local IP address. Error: [errorCode]. (OmniOrbUseHostName invalid). Type: Error Add'l Info: The service cannot determine the local IP address. Action: Restart the VoIP Monitor Service.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS0018</b>	<p>Text: Could not initialize the connection to the CallManager database. AXL error: [error number: error string].</p> <p>Type: Error</p> <p>Add'l Info: The VoIP service could not communicate with CallManager through the AXL interface. As a result, it could not query the database.</p> <p>Action: Check the status of the CallManager processes. There must be at least one CallManager with an active AXL database service in the cluster.</p>
<b>FCVMS0021</b>	<p>Text: System error. Failed to create socket for VPN service. Error: [error string].</p> <p>Type: Error</p> <p>Add'l Info: An error occurred while creating the VPN socket.</p> <p>Action: Restart the VoIP Monitor Service.</p>
<b>FCVMS111</b>	<p>Text: Unable to detach Corba Server Thread Handle. Exiting...</p> <p>Type: Fatal</p> <p>Add'l Info: The monitor service was unable to release the CORBA service thread.</p> <p>Action: restart.</p>
<b>FCVMS112</b>	<p>Text: splk_pcap_open_live() failed. [description]</p> <p>Type: Fatal</p> <p>Add'l Info: The monitor service was unable to open the specific device.</p> <p>Action: Restart</p>
<b>FCVMS200</b>	<p>Text: WSASStartup() failed. [description]</p> <p>Type: Error</p> <p>Add'l Info: The monitor service was unable to initialize the Windows sockets library.</p> <p>Action: The monitor service will retry the operation. See [description] to determine the cause of the failure.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS201</b>	Text: Socket () failed. [description] Type: Error Add'l Info: The monitor service was unable to create the socket to send RTP streams to the supervisors. Action: Restart the VoIP Monitor service.
<b>FCVMS203</b>	Text: splk_pcap_lookupnet() failed. errorBuf: [description] Type: Error Add'l Info: A call to the SPCD driver to get network information failed. Action: Restart the VoIP Monitor service. Verify that the SPCD driver is loaded.
<b>FCVMS204</b>	Text: splk_pcap_compile() failed. filterString: [string]. Type: Error Add'l Info: The filter string used to filter packets is invalid. Action: Contact TAC for assistance.
<b>FCVMS205</b>	Text: splk_pcap_setfilter() failed. filterString: [string]. Type: Error Add'l Info: A packet filter could not be set in the SPCD driver. Action: Contact TAC for assistance.
<b>FCVMS206</b>	Text: splk_pcap_lookupdev() failed. errorBuf = [description] Type: The adapter used to sniff voice packets could not be accessed. Add'l Info: Contact TAC for assistance.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS207</b>	<p><b>Text:</b> Error: in retrieving mac address for agent [extension] error [error].</p> <p><b>Type:</b> Error</p> <p><b>Add'l Info:</b> A request was made to monitor an agent, and the monitor service was unable to retrieve the MAC address for the specified extension from the CallManager's SQL server database.</p> <p><b>Action:</b> Check if anything has changed regarding the CallManager database.</p> <p>Check the FCVoIP ODBC DSN for correctness.</p> <p>Verify that the CallManager database is running.</p> <p>Verify that a record exists in the CallManager database for the extension.</p> <p>Reinstall the monitor service if it needs to use a new username or password.</p>
<b>FCVMS208</b>	<p><b>Text:</b> Host lookup unsuccessful. Invalid host name [hostname].</p> <p><b>Type:</b> Error</p> <p><b>Add'l Info:</b> The service tried to refresh a recording session using a host name passed by the client, but could not resolve the VoIP Monitor service host name to an IP address.</p> <p><b>Action:</b> Verify that the monitor service can resolve the IP address of the supervisor's PC by hostname.</p>
<b>FCVMS209</b>	<p><b>Text:</b> Failed to update the LDAP server; [description].</p> <p><b>Type:</b> Error</p> <p><b>Add'l Info:</b> The monitor service was unable to update LDAP with the CORBA IOR, which is used by clients to connect to the monitor service.</p> <p><b>Action:</b> The monitor service will retry the operation. See [description] to determine the cause of the failure.</p> <p>Verify that LDAP is running.</p> <p>Reinstall the monitor service if LDAP has moved.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS210</b>	Text: impl_is_ready() returned. Shutting down the server thread. Type: Error Add'l Info: A request was made to shut down the service. Action: Restart.
<b>FCVMS211</b>	Text: Caught a CORBA exception [exception]. Type: Error Add'l Info: An exception occurred in the CORBA service thread. Action: Contact TAC for assistance.
<b>FCVMS212</b>	Text: setsockopt() failed. Type: Error Add'l Info: The monitor service was unable to prioritize the packet going out to supervisors. Action: Contact TAC for assistance.
<b>FCVMS213</b>	Text: We are unable to connect or reconnect to the current CM. Try subscribers. Type: Error Add'l Info: An error occurred while trying to connect to the CallManager database. Action: Verify that the CallManager database is running.
<b>FCVMS214</b>	Text: All DSNs have been unsuccessful. Type: Error Add'l Info: An error occurred while trying to connect to the CallManager database. Action: Verify that the CallManager database is running.
<b>FCVMS215</b>	Text: Initializing the Winsock library failed. Type: Error Add'l Info: CANNOT initialize Winsock. Action: Contact TAC for assistance.



Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS216</b>	Text: Could not detach thread(handle). Type: Error Add'l Info: An error occurred while trying to free memory associated with the VPN server thread. Action: None.
<b>FCVMS217</b>	Text: Creating the listening socket failed. Exit the VPN thread. Type: Error Add'l Info: An error occurred while trying to create the VPN server socket. Action: Restart.
<b>FCVMS218</b>	Text: Initializing the Winsock library failed in the VPN thread, error [error]. Type: Error Add'l Info: Cannot initialize Winsock. Action: Contact TAC for assistance.
<b>FCVMS219</b>	Text: Creating the listening socket failed in the VPN thread, error [error]. Type: Error Add'l Info: The VPN listening socket could not be created. Action: Contact TAC for assistance.
<b>FCVMS220</b>	Text: Couldn't find the local IP address in the VPN thread, error [error]. Type: Error Add'l Info: A host name was used in the registry, but the name could not be resolved into an IP address. Action: Contact TAC for assistance.
<b>FCVMS221</b>	Text: The VPN thread failed to bind to the local address in the VPN thread, error [error]. Type: Error Add'l Info: Winsock errors. Action: Contact TAC for assistance.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVMS222</b>	Text: VPN thread failed to listen to the local address in the VPN thread, error [error]. Type: Error Add'l Info: Winsock errors. Action: Contact TAC for assistance.
<b>FCVMS225</b>	Text: Unable to install transient exception handler. Type: Error Add'l Info: An error occurred setting up an exception handler. Action: Restart.
<b>FCVRS102</b>	Text: Unable to start Periodic Cleanup Thread. Exiting. Type: Fatal Add'l Info: The service was unable to start the cleanup thread. Action: Restart.
<b>FCVRS103</b>	Text: Unable to detach Periodic Cleanup Thread Handle. Exiting. Type: Fatal Add'l Info: The service was unable to release the cleanup thread handle. Action: Restart.
<b>FCVRS104</b>	Text: Unable to start CORBA Server Thread. Exiting. Type: Fatal Add'l Info: The service was unable to start the CORBA service thread. Action: Restart.
<b>FCVRS105</b>	Text: Unable to detach CORBA Server Thread Handle. Exiting... Type: Fatal Add'l Info: The service was unable to release the cleanup thread handle. Action: Restart.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS106</b>	Text: Unable to start database consumer thread. Exiting... Type: Fatal Add'l Info: The service was unable to start the database thread. Action: Restart.
<b>FCVRS107</b>	Text: Unable to detach database consumer thread. Exiting. Type: Fatal Add'l Info: The service was unable to release the cleanup thread handle. Action: Restart.
<b>FCVRS108</b>	Text: Caught a CORBA exception configuring the CORBA: [object]. Type: Fatal Add'l Info: The service caught an exception while trying to initialize the CORBA [object]. Action: Restart.
<b>FCVRS109</b>	Text: Caught a CORBA exception changing CORBA server to ready. Type: Fatal Add'l Info: The service caught a CORBA exception changing the CORBA service to an active state. Action: Restart
<b>FCVRS110</b>	Text: Unable to start LDAP Update Thread. Exiting... Type: Fatal Add'l Info: The service was unable to start the LDAP update thread. Action: Restart

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS111</b>	Text: Unable to start LRM Client Thread. Exiting... Type: Fatal Add'l Info: The service was unable to start the LRM client thread. Action: Restart
<b>FCVRS112</b>	Text: Unable to detach LRM Client Thread Handle. Continue... Type: Fatal Add'l Info: The service was unable to release the LRM client thread handle. Action: None
<b>FCVRS200</b>	Text: Failed to update the LDAP server: [description] Type: Error Add'l Info: The service was unable to update LDAP with the CORBA IOR, which is used by clients to connect to the service. Action: The service will retry the operation. See [description] to determine the cause of failure.  Verify that LDAP is running.  Reinstall the Agent Statistics service if LDAP has moved.
<b>FCVRS201</b>	Text: impl_is_ready() returned. Shutting down the server thread. Type: Error Add'l Info: A request was made to shut down the service. Action: Restart.
<b>FCVRS202</b>	Text: Caught a CORBA exception. Type: Error Add'l Info: An exception occurred in the CORBA service thread. Action: The service retries the operation.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS203</b>	Text: Unable to read Key:[key], from LDAP: [description] Type: Error Add'l Info: The service was unable to read the value of the key from LDAP. The entry should have been created on install. Action: Reinstall if the entry is not in LDAP.
<b>FCVRS204</b>	Text: Caught an exception while trying to retrieve the globalID. Type: Error Add'l Info: The service encountered an exception getting the next global ID. Action: Restart.
<b>FCVRS205</b>	Text: Caught an exception while updating data. Type: Error Add'l Info: The service encountered an exception while updating the database data. Action: Restart.
<b>FCVRS206</b>	Text: Caught an exception while writing to the agent state log. Type: Error Add'l Info: The service encountered an exception while inserting the agent's state change. Action: Restart.
<b>FCVRS207</b>	Text: Caught an exception while trying to retrieve the agent state log. Type: Error Add'l Info: The service encountered an exception while retrieving the state lists for an agent. Action: None.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS208</b>	<p>Text: Caught an exception while trying to write to the call log.</p> <p>Type: Error</p> <p>Add'l Info: The service encountered an exception inserting the agent's call record into the database.</p> <p>Action: Restart.</p>
<b>FCVRS209</b>	<p>Text: Caught an exception while trying to delete a call.</p> <p>Type: Error</p> <p>Add'l Info: The service encountered an exception deleting a call from the database.</p> <p>Action: Restart.</p>
<b>FCVRS210</b>	<p>Text: Caught an exception while trying to retrieve the call log.</p> <p>Type: Error</p> <p>Add'l Info: The service encountered an exception getting the call log for an agent.</p> <p>Action: None.</p>
<b>FCVRS211</b>	<p>Text: Caught an exception while trying to start a recording.</p> <p>Type: Error</p> <p>Add'l Info: The service encountered an exception starting a recording on a particular extension.</p> <p>Action: Restart.</p>
<b>FCVRS212</b>	<p>Text: Caught an exception while trying to stop a recording.</p> <p>Type: Error</p> <p>Add'l Info: The service encountered an exception while stopping a recording for a particular extension.</p> <p>Action: Restart.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS213</b>	Text: Caught an exception while trying to delete a recording. Type: Error Add'l Info: The service encountered an exception deleting a recording from the database. Action: Restart.
<b>FCVRS214</b>	Text: Caught an exception while trying to retrieve the record log. Type: Error Add'l Info: The service encountered an exception getting the recorded file list from the database. Action: None.
<b>FCVRS215</b>	Text: Caught an exception while trying to retrieve the user statistics. Type: Error Add'l Info: The service encountered an exception getting the user (agent) statistics. Action: None.
<b>FCVRS216</b>	Text: Caught an exception while trying to retrieve the team statistics. Type: Error Add'l Info: The service encountered an exception getting the team statistics from the service. Action: None.
<b>FCVRS217</b>	Text: Caught an exception while processing a server message. Type: Error Add'l Info: The service encountered an error processing the indicated message from the client. Action: None.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS218</b>	<p>Text: Unable to establish a connection to the FCRasSvr database, [error description].</p> <p>Type: Error</p> <p>Add'l Info: The service was unable to connect the database FCRasSvr.</p> <p>Action: Verify that the MS SQL Server is running</p> <p>Verify that the FCRasSvr database has been created on the SQL server to which the Agent Statistics service points</p> <p>Verify the ODBC datasource.</p>
<b>FCVRS219</b>	<p>Text: Cache population failed. Trying again.</p> <p>Type: Error</p> <p>Add'l Info: The service was unable to cache the statistics from the database tables. It will try again.</p> <p>Action: None</p>
<b>FCVRS220</b>	<p>Text: Caught an exception while running daily cleanup.</p> <p>Type: Error</p> <p>Add'l Info: The service encountered an exception cleaning up the data.</p> <p>Action: None.</p>
<b>FCVRS221</b>	<p>Text: Caught an exception while running recording heartbeat clean up.</p> <p>Type: Error</p> <p>Add'l Info: The service encountered an exception while checking the recording heartbeats.</p> <p>Action: None</p>
<b>FCVRS222</b>	<p>Text: Unable to retrieve data, query is [query], error [description].</p> <p>Type: Error</p> <p>Add'l Info: The service was unable to get the data for the indicated query with the error listed.</p> <p>Action: None.</p>



Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS223</b>	Text: Unable to update data, query is [query], error [description]. Type: Error Add'l Info: The service was unable to update the data for the indicated query with the error listed. Action: None.
<b>FCVRS224</b>	Text: Unable to insert data, query is [query], error [description]. Type: Error Add'l Info: The service was unable to insert the data for the indicated query with the error listed. Action: None.
<b>FCVRS225</b>	Text: Unable to delete data, query is [query], error [description]. Type: Error Add'l Info: The service was unable to delete the data for the indicated query with the error listed. Action: None.
<b>FCVRS226</b>	Text: Unable to create file [file] for recording. Type: Error Add'l Info: The service does not have permission to write to the location where the recorded files are to be placed. Action: Make sure the service is logging in as a user and that the user has modify permissions to the indicated directory.
<b>FCVRS227</b>	Text: Retrieving GlobalID failed. Trying again. Type: Error Add'l Info: The service was unable to determine the starting global ID. Action: Verify if SQL service is running where the FCRasSvr database is installed, and that the database is created.

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS228</b>	Text: Caught an exception inserting [query type] into queue. Type: Error Add'l Info: The service encountered an exception adding an entry to the database queue. Action: None.
<b>FCVRS229</b>	Text: SQL Query failed with SQL error [description] for query [query]. Type: Error Add'l Info: The service was unable to perform the SQL query action with the error listed. Action: None
<b>FCVRS232</b>	Text: Caught an exception while trying to save/unsave a recording. Type: Error Add'l Info: The service caught an exception while marking recording data as saved or unsaved. Action: None
<b>FCVRS233</b>	Text: Caught an exception while trying to save recording data. Type: Error Add'l Info: The service encountered an exception saving the recording data for a particular recording. Action: None
<b>FCVRS234</b>	Text: Database SQL queue is full. Type: Error Add'l Info: The service is getting behind in processing the data to be inserted into the database. Action: None

Table 1. Error codes and descriptions

Error No.	Description
<b>FCVRS235</b>	<p>Text: A generic exception was thrown trying to insert data into FCRasStateLogToday, data is globalID [serverID, globalID], stateStartTime = [start time], stateStopTime = [stop time], agentID = [agent ID], agentExtension = [agent extension], agentPrevState = [state code], agentReasonCode = [reason code]</p> <p>Type: Error</p> <p>Add'l Info: An exception was thrown while trying to create the SQL query.</p> <p>Action: None</p>
<b>FCVRS236</b>	<p>Text: Caught an exception retrieving a list of agent IDs from the database.</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: None</p>
<b>FCVRS401</b>	<p>Text: Connected to RASCAL database version unknown.</p> <p>Type: Warn</p> <p>Add'l Info: The service was able to connect to the FCRasSvr database but was unable to determine the schema version.</p> <p>Action: Reinstall the Agent Statistics service.</p>
<b>FCVRS404</b>	<p>Text: Error in opening registry key [key] for mode [mode].</p> <p>Type: Warn</p> <p>Add'l Info: The service was unable to open [key] in [mode].</p> <p>Action: None</p>
<b>FCVRS405</b>	<p>Text: Error in [mode] registry value for [key].</p> <p>Type: Warn</p> <p>Add'l Info: The service was unable to [mode] for [key].</p> <p>Action: None</p>

Table 1. Error codes and descriptions

Error No.	Description
FD [LN]	Text: Answer call control action—answer failed. Type: Warn Add'l Info: Unable to answer the call. The call might no longer exist, or might not be in a state where it can be answered. Action: None
FD [LN]	Text: Blind transfer call control action—calls in invalid state. Type: Warn Add'l Info: Blind transfer failed. The call being transferred is not in the correct state. Action: None
FD [LN]	Text: Blind transfer call control action—complete transfer failed. Type: Warn Add'l Info: Unable to complete the transfer. One of the calls might no longer be active, or the ACD might not allow the transfer to be completed at this time. Action: None
FD [LN]	Text: Blind transfer call control action—destination Call ID is empty Call ID. Type: Warn Add'l Info: Indicates that a call control action is being attempted on a call that no longer exists, or is not in the correct state for the action to complete successfully. Action: None
FD [LN]	Text: Blind transfer call control action—empty Call ID. Type: Warn Add'l Info: Indicates that a call control action is being attempted on a call that no longer exists, or is not in the correct state for the action to complete successfully. Action: None

Table 1. Error codes and descriptions

Error No.	Description
FD [LN]	Text: Blind transfer call control action—setup transfer failed. Type: Warn Add'l Info: Unable to create the consultation call for blind transfer. No more lines might be available, or the ACD might not allow a consultation call at this time. Action: None
FD [LN]	Text: Conference call control action—empty Call ID. Type: Warn Add'l Info: Indicates that a call control action is being attempted on a call that no longer exists, or is not in the correct state for the action to complete successfully. Action: None
FD [LN]	Text: Drop call control action—drop failed. Type: Warn Add'l Info: Unable to drop the call. the call might no longer exist or might not be in a state where it can be dropped. Action: None
FD [LN]	Text: Drop call control action—empty call ID. Type: Warn Add'l Info: Indicates that a call control action is being attempted on a call that no longer exists, or is not in the correct state for the action to complete successfully. Action: None
FD [LN]	Text: Make call control action—place call failed. Type: Warn Add'l Info: Unable to place an outbound call. The phone might not have any available lines, or the ACD might not allow a call at this time. Action: None

Table 1. Error codes and descriptions

Error No.	Description
FD [LN]	Text: Redirect call control action—call state not offered. Type: Warn Add'l Info: Unable to redirect the call. The call state must offer redirect for the redirect to work. Action: None
FD [LN]	Text: Redirect call control action—empty Call ID. Type: Warn Add'l Info: Indicates that a call control action is being attempted on a call that no longer exists, or is not in the correct state for the action to complete successfully. Action: None
FD [LN]	Text: Super transfer call control action—calls for invalid state. Type: Warn Add'l Info: Supervised transfer failed. The call being transferred is not in the correct state. Action: None
FD [LN]	Text: Super transfer call control action—empty Call ID. Type: Warn Add'l Info: Indicates that a call control action is being attempted on a call that no longer exists, or is not in the correct state for the action to complete successfully. Action: None
FD [LN]	Text: Touch tones call control action—empty Call ID. Type: Warn Add'l Info: Indicates that a call control action is being attempted on a call that no longer exists, or is not in the correct state for the action to complete successfully. Action: None

Table 1. Error codes and descriptions

Error No.	Description
FD [LN]	Text: Touch tones call control action—send DTMF failed. Type: Warn Add'l Info: Unable to send touch tones for this call. The call might no longer exists, or might not be in a state that is able to accept touch tones. Action: None
FD [LN]	Text: Unable to login to RASCAL server. [error] Type: Error Add'l Info: Could not connect to Agent Statistics service. Some statistics and logs will not be available. Action: Refer to setup and troubleshooting sections.
FD [LN]	Text: Unable to login to VoIP server. [error] Type: Error Add'l Info: Could not connect to VoIP Monitor service. Call recording will not be available. Action: Refer to setup and troubleshooting sections.
FD [LN]	Text: Unable to logout of RASCAL server [error]. Type: Warn Add'l Info: Could not disconnect from the Agent Statistics service. Some statistics and logs will not be available. Action: None.
FD [LN]	Text: Unable to logout of VoIP server. [error] Type: Warn Add'l Info: Could not disconnect from VoIP Monitor service. Call recording will not be available. Action: None
FD [LN]	Text: Unable to start recording of call. [error] Type: Error Add'l Info: Could not start recording a call. Action: Refer to setup and troubleshooting sections.

Table 1. Error codes and descriptions

Error No.	Description
<b>FD [LN]</b>	Text: Unable to stop recording of call [error]. Type: Error Add'l Info: Could not stop recording the call. Action: Refer to the setup and troubleshooting sections.
<b>FF [LN]</b>	Text: COM error. Unable to properly initialize. Type: Fatal Add'l Info: Desktop might not be running or might be registered as a COM server. Action: From a command prompt, go to the Desktop bin directory and run the command <b>regsvr32 fastcallserverproxy.dll</b>
<b>FF [LN]</b>	Text: Failed to write data to the Cisco Desktop Enterprise Data Server. Type: Error Add'l Info: An error was returned while trying to write data to the Enterprise service. Action: Make sure the Enterprise service is properly installed and running.
<b>FF [LN]</b>	Text: FastCall is not properly installed on your system. Type: Fatal Add'l Info: A component or configuration of Cisco is corrupt or not installed properly. Action: Uninstall all Cisco components and reinstall.
<b>FF [LN]</b>	Text: Maximum number of clients already attached. Type: Fatal Add'l Info: Agent can only support X number of clients as defined by the operating system, and is already supporting the maximum number of clients. Action: Shut down one or more Agent clients and try again. Agent clients include Enterprise Data service and Chat service.



Table 1. Error codes and descriptions

Error No.	Description
FF [LN]	<p>Text: Maximum number of clients already reached.</p> <p>Type: Fatal</p> <p>Add'l Info: Agent can only support X number of clients as defined by the operating system, and is already supporting the maximum number of clients.</p> <p>Action: Shut down one or more Agent clients and try again. Agent clients include Enterprise Data service and Chat service.</p>
FF [LN]	<p>Text: Unable to attach to or create FastCall Application.</p> <p>Type: Fatal</p> <p>Add'l Info: Desktop is not running or registered as a COM server.</p> <p>Action: From a command prompt, go to the Desktop bin directory and run the command <b>regsvr32 fastcallserverproxy.dll</b>.</p>
IP0001	<p>Text: Internal error: An unexpected error occurred while &lt;action&gt;.</p> <p>Type: Error</p> <p>Add'l Info: An unexpected failure has occurred. The integrity of the IPPA service is now suspect.</p> <p>Action: If the problem persists, contact technical support.</p>

Table 1. Error codes and descriptions

Error No.	Description
IP0004	<p>Text: Could not get &lt;type&gt; data from LDAP: &lt;error&gt;.</p> <p>Type: Informational</p> <p>Add'l Info: The IPPA service cannot communicate with the Directory Services server or the data was not found in Directory Services.</p> <p>Action: Perform the following actions:</p> <ul style="list-style-type: none"> <li>■ Verify that the Directory Services server is running. If it is not running, start it.</li> <li>■ Verify that the Directory Services has been populated.</li> <li>■ Restart Directory Services.</li> <li>■ Restart the IPPA service.</li> <li>■ Verify the data exists in LDAP. If the data does not exist, you might need to add it using the Sync service (for agent and team information), Cisco Desktop Administrator (for workgroup and other settings), from previous backups/upgrades, or reinstall CAD.</li> <li>■ If the problem persists, contact technical support.</li> </ul>
IP0006	<p>Text: CTI server not available.</p> <p>Type: Informational</p> <p>Add'l Info: The CTI server is currently down.</p> <p>Action: Perform the following actions:</p> <ul style="list-style-type: none"> <li>■ Wait a short time and retry the action.</li> <li>■ Verify that the CTI server is up and active. Restart the server if necessary.</li> <li>■ Verify that the CTI server IP address or hostname, and port are correct.</li> <li>■ If the problem persists, restart the IPPA service.</li> <li>■ Check for any problems connecting to the CTI service or its computer. See <a href="#">"Network Check" on page 153</a>.</li> <li>■ If the problem persists, contact technical support.</li> </ul>

Table 1. Error codes and descriptions

Error No.	Description
IP0019	<p>Text: Could not get &lt;type&gt; data from LDAP: &lt;error&gt;.</p> <p>Type: Informational</p> <p>Add'l Info: The IPPA service cannot communicate with the Directory Services server or the data was not found in the Directory Services.</p> <p>Action: Perform the following actions:</p> <ul style="list-style-type: none"> <li>■ Verify that the Directory Services server is running. If it is not running, start it.</li> <li>■ Verify that the Directory Services has been populated.</li> <li>■ Restart Directory Services.</li> <li>■ Restart the IPPA service.</li> <li>■ Verify the data exists in LDAP. If the data does not exist, you might need to add it using the Sync service (for agent and team information), Cisco Desktop Administrator (for workgroup and other settings), from previous backups/upgrades, or reinstall CAD.</li> <li>■ If the problem persists, contact technical support.</li> </ul>
IP0020	<p>Text: Internal error: Could not create &lt;type&gt; object because IPPA service is out of memory.Error</p> <p>Add'l Info: The machine running the IPPA service ran out of available memory.</p> <p>Action: Perform the following actions:</p> <ul style="list-style-type: none"> <li>■ Stop all unnecessary processes on the machine.</li> <li>■ Restart the IPPA service.</li> <li>■ Run a memory check. See <a href="#">"Memory Check" on page 154</a>.</li> <li>■ Add more memory to the machine.</li> </ul>
IP0029	<p>Text: Agent &lt;ID&gt; already logged in: &lt;error&gt;</p> <p>Type: Error</p> <p>Add'l Info: The agent is trying to log in but the IPPA service already has the agent logged in.</p> <p>Action: None.</p>

Table 1. Error codes and descriptions

Error No.	Description
IP0030	<p><b>Text:</b> Set agent state call failed for agent &lt;ID&gt;. Resource busy &lt;code&gt;. The extension &lt;extension&gt; is used by another agent: &lt;error&gt;</p> <p><b>Type:</b> Informational</p> <p><b>Add'l Info:</b> The CTI server rejected the request because the extension being used was incorrect or is in use by another logged-in agent.</p> <p><b>Action:</b> Retry the action. If it fails again, log the agent out and then back in, and then try again.</p>
IP0031	<p><b>Text:</b> Unable to send CTI action &lt;action&gt; for agent &lt;agent ID&gt;: &lt;error&gt;.</p> <p><b>Type:</b> Informational</p> <p><b>Add'l Info:</b> The CTI server rejected an action request due to some error.</p> <p><b>Action:</b> Perform the following actions:</p> <ul style="list-style-type: none"> <li>■ Verify the agent ID and extension is correct.</li> <li>■ Retry the action.</li> <li>■ If it fails again, log the agent out and then back in, and then try again.</li> <li>■ If it continues to occur, restart the CTI and IPP services and try again.</li> <li>■ If the problem persists, contact technical support.</li> </ul>
IP0033	<p><b>Text:</b> Internal error: CTI request ID &lt;request ID&gt; and response ID &lt;response ID&gt; do not match for agent &lt;agent ID&gt;</p> <p><b>Type:</b> Informational</p> <p><b>Add'l Info:</b> The response from the CTI server did not match the request sent. This is an internal error.</p> <p><b>Action:</b> Retry the action. If it fails again, restart the IPPA service. If the problem persists, contact technical support.</p>

Table 1. Error codes and descriptions

Error No.	Description
IP0034	<p>Text: Agent &lt;ID&gt; could not change to &lt;state&gt; from current state &lt;state&gt;.</p> <p>Type: Informational</p> <p>Add'l Info: The request to change the agent's state failed because the new state would be invalid. It could be a timing issue.</p> <p>Action: Retry the action. If it fails again, restart the IPPA service. If the problem persists, contact technical support.</p>
IP0035	<p>Text: CTI action &lt;action&gt; failed for agent &lt;agent ID&gt;: error.</p> <p>Type: Informational</p> <p>Add'l Info: The CTI server rejected an action request due to an error.</p> <p>Action: Perform the following actions:</p> <ul style="list-style-type: none"><li>■ Verify the agent ID and extension is correct.</li><li>■ Retry the action.</li><li>■ If it fails again, log the agent out and then back in, and then try again.</li><li>■ Restart the IPPA service.</li><li>■ If the problem persists, contact technical support.</li></ul>

Table 1. Error codes and descriptions

Error No.	Description
<b>IP0038</b>	<p>Text: Could not open web service configuration file &lt;file name&gt;.</p> <p>Type: Error</p> <p>Add'l Info: Could not open the web server configuration file used by the IPPA client to communicate with the IPPA service.</p> <p>Action: Perform the following actions:</p> <ul style="list-style-type: none"> <li>■ Check the registry to see if the /HKLM/SOFTWARE/Spanlink/CAD/IPPA /Config/TOMCAT HOME registry value is the location of the Tomcat directory. By default, it is C:\Program Files\wfavvid\tomcat_appadmin\. Ensure that this directory exists.</li> <li>■ Check the registry to see if the /HKLM/SOFTWARE/Spanlink/CAD/Site Setup/Install Directory requester value is the location of the CAD software. By default, it is C:\Program Files\Cisco\Desktop\. Ensure that this directory exists.</li> <li>■ IPPA service does not have sufficient permissions to create a file in the Tomcat folder. Log in as the same user used by the IPPA service and create a file in the Tomcat folder to verify Tomcat has sufficient permissions.</li> <li>■ If the file is read only, make it writable.</li> <li>■ If the disk is full, remove unnecessary files.</li> <li>■ If the problem persists, contact technical support.</li> </ul>
<b>IP0040</b>	<p>Text: The CORBA connection information for the IPPA service obtained from the LRM service is invalid.</p> <p>Type: Informational</p> <p>Add'l Info: The CORBA connection information (IOR) for the IPPA service that the IPPA client obtained from the LRM service does not belong to the IPPA service.</p> <p>Action: Restart the IPPA and LRM services, wait until they are both active, and then try the action again. If the problem persists, contact technical support.</p>

Table 1. Error codes and descriptions

Error No.	Description
IP0042	<p>Text: LRM service error &lt;error description&gt;.</p> <p>Type: Error</p> <p>Add'l Info: An error occurred while communicating with the LRM service.</p> <p>Action: Restart the IPPA and LRM services, wait until they are both active, and then try the action again. If the problem persists, contact technical support.</p>
IP0046	<p>Text: Internal error: Could not create the &lt;type&gt; event. &lt;error&gt;.</p> <p>Type: Major</p> <p>Add'l Info: Unable to create a signal event of the specified type.</p> <p>Action: Run a memory check. See <a href="#">"Memory Check" on page 154</a>. Restart the IPPA service. If the error persists, contact technical support.</p>
IP0047	<p>Text: Internal error: Could not create the process event thread. &lt;error&gt;.</p> <p>Type: Warn</p> <p>Add'l Info: A necessary processing thread could not be started.</p> <p>Action: Run a memory check. Restart the IPPA service. If the problem persists, contact technical support.</p>
IP0048	<p>Text: Internal error: Could not initialize CTI thread pool manager. &lt;error&gt;.</p> <p>Type: Warn</p> <p>Add'l Info: An internal object could not be initialized properly.</p> <p>Action: Restart the IPPA service. If the problem persists, contact technical support.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>IP0059</b>	<p>Text: Unable to set process priority to high: &lt;error&gt;.</p> <p>Type: Major</p> <p>Add'l Info: The IPPA service was unable to change its process priority to high because of the specified Windows error.</p> <p>Action: Check the Windows error. Ensure that the user that is used by the IPPA service has permission to change its process priority to High.</p>
<b>LC0001</b>	<p>Text: An unexpected error occurred.</p> <p>Type: Informational</p> <p>Add'l Info: An unexpected exception was caught.</p> <p>Action: If this happens consistently, check the inputs and possibly reinstall the software.</p>
<b>LC0002</b>	<p>Text: Passed in value is invalid.</p> <p>Type: Informational</p> <p>Add'l Info: The passed-in value to the function is invalid.</p> <p>Action: Make sure all required values have valid values.</p>
<b>LC0003</b>	<p>Text: Currently in recovery.</p> <p>Type: Informational</p> <p>Add'l Info: LDAPClient could not connect to LDAP and is currently attempting to reconnect.</p> <p>Action: Make sure that the Cisco Desktop LDAP Monitor service and LDAP are running.</p> <p>On the client PC, make sure that the Site Setup registry entries are correct. The most common errors are in the LDAP Host 1/LDAP Host 2, LDAP Port 1/LDAP Port 2, LDAP Bind DN, or LDAP Pwd values.</p> <p>Check that the LDAP Root registry key is valid.</p> <p>Check that you can ping the LDAP PC from the client PC.</p>



Table 1. Error codes and descriptions

Error No.	Description
<b>LC0004</b>	<p>Text: Autorecovery is not enabled.</p> <p>Type: Informational</p> <p>Add'l Info: Autorecovery to LDAP is not enabled. It must be enabled so that LDAPClient automatically attempts to reconnect to LDAP when the connection is lost.</p> <p>Action: Enable autorecovery from within the application using LDAPClient.</p>
<b>LC0005</b>	<p>Text: An error occurred in starting a thread.</p> <p>Type: Informational</p> <p>Add'l Info: An error occurred in starting the autorecovery thread.</p> <p>Action: Check the number of threads and memory used by the program.</p>
<b>LC0008</b>	<p>Text: An error occurred in detaching thread.</p> <p>Type: Informational</p> <p>Add'l Info: An error occurred in detaching the autorecovery thread.</p> <p>Action: Check the number of threads and memory used by the program.</p>
<b>LC0009</b>	<p>Text: Failed to connect to server.</p> <p>Type: Informational</p> <p>Add'l Info: LDAPClient failed to connect to the first LDAP.</p> <p>Action: Make sure that the Cisco Desktop LDAP Monitor service and LDAP are running.</p> <p>On the client PC, make sure that the Site Setup registry entries are correct. The most common errors are in the LDAP Host 1/LDAP Host 2, LDAP Port 1/LDAP Port 2, LDAP Bind DN, or LDAP Pwd values.</p> <p>Check that the LDAP Root registry key is valid.</p> <p>Check that you can ping the LDAP PC from the client PC.</p>

Table 1. Error codes and descriptions

Error No.	Description
LC0010	<p>Text: There is no more data.</p> <p>Type: Informational</p> <p>Add'l Info: There is no more data to retrieve.</p> <p>Action: None</p>
LC0011	<p>Text: Failed to initialize LDAP connection.</p> <p>Type: Informational</p> <p>Add'l Info: Failed to initialize the LDAP connection.</p> <p>Action: Make sure that the Cisco Desktop LDAP Monitor service and LDAP are running.</p> <p>ON the client PC, make sure that the Site Setup registry entries are correct. The most common errors are in the LDAP Host 1/LDAP Host 2, LDAP Port 1/LDAP Port 2, LDAP Bind DN, or LDAP Pwd values.</p> <p>Check that the LDAP Root registry key is valid.</p> <p>Check that you can ping the LDAP PC from the client PC.</p>
LC0012	<p>Text: Failed to bind to LDAP server.</p> <p>Type: Informational</p> <p>Add'l Info: Failed to bind to the specified LDAP.</p> <p>Action: Make sure that the Cisco Desktop LDAP Monitor service and LDAP are running.</p> <p>ON the client PC, make sure that the Site Setup registry entries are correct. The most common errors are in the LDAP Host 1/LDAP Host 2, LDAP Port 1/LDAP Port 2, LDAP Bind DN, or LDAP Pwd values.</p> <p>Check that the LDAP Root registry key is valid.</p> <p>Check that you can ping the LDAP PC from the client PC.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>LC0014</b>	<p>Text: Could not open registry key.</p> <p>Type: Informational</p> <p>Add'l Info: Could not open the specified registry key.</p> <p>Action: Ensure that the Site Setup registry key exists and contains the correct keys.</p> <p>Check that the application user has permission to read/write to the registry.</p>
<b>LC0015</b>	<p>Text: Could not read value in registry key.</p> <p>Type: Informational</p> <p>Add'l Info: Could not read the specified value in the specified registry key.</p> <p>Action: Ensure that the Site Setup registry key exists and contains the correct keys.</p> <p>Check that the application user has permission to read/write to the registry.</p>
<b>LC0016</b>	<p>Text: Unknown error code.</p> <p>Type: Informational</p> <p>Add'l Info: An unknown error code was specified.</p> <p>Action: Provide log/debug files with steps to reproduce the error to technical support.</p>
<b>LC0017</b>	<p>Text: LDAP error.</p> <p>Type: Informational</p> <p>Add'l Info: An OpenLDAP LDAP error occurred.</p> <p>Action: Provide log/debug files with steps to reproduce the error to technical support.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>LC0019</b>	<p>Text: Add entry failed.</p> <p>Type: Informational</p> <p>Add'l Info: An error occurred in adding the specified entry.</p> <p>Action: Check the error description.</p> <p>Check if the entry already exists.</p> <p>Check that the LDAP password used is correct and is not empty. An empty password means anonymous login, which is not able to add entries.</p> <p>Check that the LDAP Root registry key is valid.</p>
<b>LC0020</b>	<p>Text: Ignore Informational/key.</p> <p>Type: Informational</p> <p>Add'l Info: The indicator type for object or key is set to ignore, which is not allowed.</p> <p>Action: Check the error description.</p> <p>Provide log/debug files with steps to reproduce the error to technical support.</p>
<b>LC0021</b>	<p>Text: Error in allocating memory.</p> <p>Type: Informational</p> <p>Add'l Info: There was an error in allocating memory.</p> <p>Action: Check the amount of memory used by the program and available on the PC.</p>
<b>LC0022</b>	<p>Text: Could not find specified entry.</p> <p>Type: Informational</p> <p>Add'l Info: Could not find the specified entry.</p> <p>Action: Check that the specified entry exists.</p> <p>Check that the LDAP Root registry key is valid.</p>
<b>LC0024</b>	<p>Text: Could not get DN from LDAP entry.</p> <p>Type: Informational</p> <p>Add'l Info: Could not get the DN from the specified LDAP key.</p> <p>Action: Check that the specified entry exists.</p> <p>Check that the LDAP Root registry key is valid.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>LC0025</b>	<p>Text: Delete entry failed.</p> <p>Type: Informational</p> <p>Add'l Info: Failed to delete the specified entry.</p> <p>Action: Check the error description.</p> <p>If the specified entry does not exist, no action is needed.</p> <p>Check that the LDAP password is correct and is not empty. An empty password means anonymous login, which is not able to delete entries.</p> <p>Check that the LDAP Root registry key is valid.</p>
<b>LC0026</b>	<p>Text: The entry already exists.</p> <p>Type: Informational</p> <p>Add'l Info: Attempted to add an entry that already exists.</p> <p>Action: Check the error description.</p> <p>Verify that the entry already exists.</p>
<b>LC0027</b>	<p>Text: The entry does not exist.</p> <p>Type: Informational</p> <p>Add'l Info: Attempted to update an entry that does not exist.</p> <p>Action: Check the error description.</p> <p>Verify that the entry does not exist.</p>
<b>LC0028</b>	<p>Text: Update entry failed.</p> <p>Type: Informational</p> <p>Add'l Info: Attempted to update an entry that does not exist.</p> <p>Action: Check the error description.</p> <p>Verify that the entry does not exist.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>LC0029</b>	Text: A required attribute was not added. Type: Informational Add'l Info: The specified required attribute was not added. Action: Check the error description. Check the indicator type and value of the attribute. Provide log/debug files, with steps to reproduce the error, to technical support.
<b>LC0033</b>	Text: Invalid owner. Type: Informational Add'l Info: AN invalid owner of the entry was specified. Action: Provide log/debug files with steps to reproduce the error to technical support.
<b>LC0034</b>	Text: Error in inserting object into map. Type: Informational Add'l Info: FAiled to insert the specified object into the specified map. Action: Check the amount of memory used by the program and available on the PC.
<b>LC0047</b>	Text: Parent does not exist. Type: Debug Add'l Info: Failed to add entry because the parent of the entry does not exist. Action: Ensure that the parent entry exists.
<b>LC0048</b>	Text: Cannot open file. Type: Debug Add'l Info: Cannot open the specified file. Action: Verify that the file exists. Verify that the user has permission to read/write to the file/directory.

Table 1. Error codes and descriptions

Error No.	Description
<b>LC0049</b>	Text: Could not get file size. Type: Debug Add'l Info: Cannot get the specified file size. Action: Verify that the file exists. Verify that the user has permission to read/write to the file/directory.
<b>LC0050</b>	Text: Object indicator cannot be delete for add operation. Type: Debug Add'l Info: The object indicator type was set to delete for an add operation, which is not allowed. Action: Provide log/debug files with steps to reproduce the error to technical support.
<b>LC0051</b>	Text: The supervisor is still referenced in at least one team. Type: Debug Add'l Info: Attempted to delete a supervisor who is still primary/secondary supervisor of at least one team. Action: Remove the supervisor from all teams before deleting the supervisor.
<b>LC0052</b>	Text: The skill is still referenced in at least one team. Type: Debug Add'l Info: Attempted to delete a skill that is part of at least one team. Action: Remove skill from all teams before deleting the skill.
<b>LC0053</b>	Text: The team is still referenced by at least one agent. Type: Debug Add'l Info: Attempted to delete a team with at least one agent. Action: Remove all agents from the team before deleting the team.

Table 1. Error codes and descriptions

Error No.	Description
<b>LC0054</b>	<p>Text: The work group is still referenced by at least one agent.</p> <p>Type: Debug</p> <p>Add'l Info: Attempted to delete a work group that at least one agent is using.</p> <p>Action: Make sure no agents are using the work group before deleting the work group.</p>
<b>LC0055</b>	<p>Text: Agent is still a supervisor.</p> <p>Type: Debug</p> <p>Add'l Info: Attempted to delete an agent who is also a supervisor.</p> <p>Action: Delete the supervisor, and then delete the agent.</p>
<b>LC0057</b>	<p>Text: Failed to create [name] event [error].</p> <p>Type: Debug</p> <p>Add'l Info: Could not create an event used for signaling.</p> <p>Action: Check the error. Check the amount of memory used by the program and available on the PC.</p>
<b>LC0060</b>	<p>Text: Failed to [operation]; [error].</p> <p>Type: Debug</p> <p>Add'l Info: Failed to complete the named LDAP operation because the client does not have sufficient access rights.</p> <p>Action: Ensure that LDAP Bind DN and LDAP Pwd in the registry are correct.</p>
<b>LC0061</b>	<p>Text: Invalid LDAP server type.</p> <p>Type: Debug</p> <p>Add'l Info: The LDAP server type specified in the operation is not valid for that LDAP operation.</p> <p>Action: Provide log/debug files, with steps to reproduce the error, to technical support.</p>



Table 1. Error codes and descriptions

Error No.	Description
<b>LC0062</b>	Text: Timeout. Type: Debug Add'l Info: There was a timeout waiting for CAD Configuration Setup tool to populate LDAP with initial data. Action: Run Configuration Setup to complete the installation.
<b>LC0063</b>	Text: Could not write value [value] in registry key [key]. Type: Informational Add'l Info: Unable to write the specified value to the specified key in the registry. Action: Check that the user has permissions to write to the registry. Check if the key and parent exist in the registry. Try to write a value to the key.
<b>LC0064</b>	Text: Got stop event. Type: Debug Add'l Info: Notification that the post install is done with populating LDAP database. Action: None.
<b>LC0065</b>	Text: CFileWatchdog::[method] error for dir/file [name]: [error]. Type: Informational Add'l Info: Failed to add a directory or file to be watched for changes in the configuration file. Action: Check if the specified directory or files exists.
<b>LM0001</b>	Text: An unexpected error occurred. Type: Informational Add'l Info: An unexpected exception was caught. Action: If this happens consistently, check the inputs and possibly reinstall the software.  Provide log/debug files with steps to reproduce the error to technical support.

Table 1. Error codes and descriptions

Error No.	Description
LM0004	<p>Text: Service could not be installed as a Windows NT service. The Windows NT service error code is [code].</p> <p>Type: Fatal</p> <p>Add'l Info: The NT service could not be installed.</p> <p>Action: Check the error code.</p>
LM0006	<p>Text: The [service] Windows NT service could not be uninstalled. The Windows NT service error code is [code].</p> <p>Type: Fatal</p> <p>Add'l Info: The NT service could not be uninstalled.</p> <p>Action: Check the error code.</p>
LM0007	<p>Text: The argument passed to the program is invalid and the program will exit.</p> <p>Type: Fatal</p> <p>Add'l Info: An invalid argument was passed.</p> <p>Action: Check the argument passed to the program.</p>
LM0008	<p>Text: The Windows NT service was not removed successfully.</p> <p>Type: Informational</p> <p>Add'l Info: The Windows NT service was not removed successfully.</p> <p>Action: Check if the NT service still exists.</p>
LM0009	<p>Text: The Windows NT service is not able to register itself with the Windows NT service manager.</p> <p>Type: Fatal</p> <p>Add'l Info: The Windows NT service is not able to register itself with the Windows NT service manager.</p> <p>Action: Check if the Windows NT service exists.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>LM0010</b>	<p>Text: The initialization of the Windows NT service was unsuccessful.</p> <p>Type: Fatal</p> <p>Add'l Info: The Windows NT service was unable to initialize.</p> <p>Action: Check if the NT service still exists.</p>
<b>LM0011</b>	<p>Text: An invalid request was received by the Windows NT service from the Windows NT service manager.</p> <p>Type: Error</p> <p>Add'l Info: The Windows NT service manager sent an invalid request to the NT service.</p> <p>Action: None</p>
<b>LM0012</b>	<p>Text: Process died.</p> <p>Type: Informational</p> <p>Add'l Info: A process that should be running has terminated.</p> <p>Action: Check the process log/debug files for more information on why the process terminated.</p> <p>Verify that the process and slapd.conf files exist.</p> <p>Verify that the database directory has all seven .dat files.</p> <p>Try running the process from a command line with specified arguments.</p>
<b>LM0013</b>	<p>Text: Unknown error from WaitForMultiObject [code].</p> <p>Type: Informational</p> <p>Add'l Info: Received an unknown error while blocking for event.</p> <p>Action: Check the error code.</p>
<b>LM0014</b>	<p>Text: Failed to terminate process [process type error].</p> <p>Type: Informational</p> <p>Add'l Info: Failed to terminate the specified process.</p> <p>Action: Check the error code.</p> <p>Check the process log/debug files for more information on why the process did not terminate.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>LM0015</b>	<p>Text: Failed to create process [process type] params [parameter error].</p> <p>Type: Error</p> <p>Add'l Info: Failed to start the specified process with the specified parameters.</p> <p>Action: Check the error code.</p> <p>Check the process log/debug files for more information.</p> <p>Verify that the process and slapd.conf files exist.</p> <p>Verify that the database directory has all seven .dat files.</p> <p>Try running the process from a command line with specified parameters.</p>
<b>LM0016</b>	<p>Text: LDAP error.</p> <p>Type: Informational</p> <p>Add'l Info: An LDAP error has occurred.</p> <p>Action: Check the error code.</p>
<b>LM0017</b>	<p>Text: Error creating [type] event. [error].</p> <p>Type: Error</p> <p>Add'l Info: An error occurred in creating the specified event.</p> <p>Action: Check the error code.</p>
<b>LM0018</b>	<p>Text: Could not set console event handler.</p> <p>Type: Error</p> <p>Add'l Info: Could not set the console event handler used to handle console input.</p> <p>Action: Provide log/debug files with steps to reproduce the error to technical support.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>LRMS1000</b>	Text: Could not get this server host name, quit. Type: Fatal Add'l Info: The service could not obtain its own host name. Action: The service will exit and restart. If the problem continues to occur, check the computer for other problems such as running out of virtual memory.
<b>LRMS1002</b>	Text: Could not create [thread]. Type: Fatal Add'l Info: The service could not create a thread. Action: The service will exit and restart. If the problem continues to occur, check the computer for other problems such as running out of virtual member.
<b>LRMS1003</b>	Text: Initializing listener socket failed. Type: Fatal Add'l Info: The LRM service was unable to set up its server socket properly. Action: The service will exit and restart. If the problem continues to occur, check the computer for other problems such as running out of virtual memory.
<b>LRMS1004</b>	Text: Cannot add listener descriptor. Type: Fatal Add'l Info: The LRM service was unable to set up its server socket properly. Action: The service will exit and restart. If the problem continues to occur, check the computer for other problems such as running out of virtual memory.
<b>LRMS1005</b>	Text: SServerDispatch return with [error]. Exiting. Type: Fatal Add'l Info: The LRM service received an unexpected error. Action: The service will exit and restart. If the problem continues to occur, check the computer for other problems such as running out of virtual memory.

Table 1. Error codes and descriptions

Error No.	Description
<b>LRMS1006</b>	Text: Could not start a single working thread, can't continue. Type: Fatal Add'l Info: The service could not create a thread. Action: The service will exit and restart. If the problem continues to occur, check the computer for other problems such as running out of virtual memory.
<b>LRMS1007</b>	Text: MSL thread fails on waiting for objects, quit. Type: Fatal Add'l Info: The LRM service received an unexpected error. Action: The service will exit and restart. If the problem continues to occur, check the computer for other problems such as running out of virtual memory.
<b>LRMS2000</b>	Text: Could not connect with LDAP, using default one. Type: Error Add'l Info: The LRM service attempted to read server parameters from LDAP. It could not, and so default parameters will be used. Action: Restart the service if default parameters are not acceptable.
<b>LRMS2002</b>	Text: Invalid CTI type. Use MSL as default. Type: Error Add'l Info: The LRM service read the CTI type from LDAP, and the type was invalid. The default CTI type is IPCC Express. Action: None
<b>LRMS2003</b>	Text: Unexpected exception in Manager Thread. Type: Error Add'l Info: An unexpected error occurred in the thread manager. Action: None

Table 1. Error codes and descriptions

Error No.	Description
<b>LRMS2004</b>	Text: Unexpected exception in Working Thread. Type: Error Add'l Info: An unexpected error occurred in a working thread. Action: None
<b>LRMS2005</b>	Text: Could not create working thread [thread]. Type: The LRM service could not create a working thread. Add'l Info: None
<b>LRMS2006</b>	Text: Recovery cannot start thread sending request to CVD, quit. Type: Error Add'l Info: A necessary thread could not be started. The service will exit and restart.
<b>LRMS2007</b>	Action: CVD running thread failed on waiting for object signal. Action: Error Action: The LRM service detected an unexpected exception. The CVD thread will exit. Action: Restart the LRM service.
<b>LRMS2008</b>	Text: Unexpected Exception in CBD thread. Type: Error Add'l Info: The LRM service detected an unexpected exception. Action: Check for abnormal behavior.
<b>LS0001</b>	Text: An unexpected error occurred. Type: Informational Add'l Info: The LRM service detected an unexpected exception. Action: If this happens consistently, check the inputs and possibly reinstall the software.  Provide log/debug files with steps to reproduce the error to technical support.

Table 1. Error codes and descriptions

Error No.	Description
<b>LS0002</b>	Text: Could not set console event handler. Type: Error Add'l Info: Could not set the console event handler used to handle console input. Action: Provide log/debug files with steps to reproduce the error to technical support.
<b>LS0003</b>	Text: An error occurred in starting a thread. Type: Informational Add'l Info: An error occurred in starting the autorecovery thread. Action: Check the number of threads and memory used by the program.
<b>LS0004</b>	Text: An error occurred in detaching thread. Type: Informational Add'l Info: An error occurred in detaching the autorecovery thread. Action: Check the number of threads and memory used by the program.
<b>LS0007</b>	Text: Service could not be installed as a Windows NT service. The Windows NT service error code is [error code]. Type: Fatal Add'l Info: The NT service could not be installed. Action: Check the error code.
<b>LS0009</b>	Text: The [service] Windows NT service could not be uninstalled. The Windows NT service error code is [error code]. Type: Fatal Add'l Info: The NT service could not be uninstalled. Action: Check the error code.



Table 1. Error codes and descriptions

Error No.	Description
<b>LS0010</b>	Text: The argument passed to the program is invalid and the program will exit. Type: Fatal Add'l Info: An invalid argument was passed. Action: Check the argument passed to the program.
<b>LS0011</b>	Text: The Windows NT service was not removed successfully. Type: Informational Add'l Info: The Windows NT service was not removed successfully. Action: Check if the NT service still exists.
<b>LS0012</b>	Text: The Windows NT service is not able to register itself with the Windows NT service manager. Type: Fatal Add'l Info: The Windows NT service is not able to register itself with the Windows NT service manager. Action: Check if the NT service exists.
<b>LS0013</b>	Text: The initialization of the Window NT service was unsuccessful. Type: Error Add'l Info: The initialization of the Windows NT service was unsuccessful. Action: Check if the NT service still exists.
<b>LS0014</b>	Text: An invalid request was received by the Windows NT service from the Windows NT service manager. Type: Error Add'l Info: An invalid request was received by the Windows NT service from the Windows NT service manager. Action: None

Table 1. Error codes and descriptions

Error No.	Description
PD [LN]	Text: Agent state change request failed: [error string] Type: Error Add'l Info: Could not change the agent state. Action: Verify that the agent state change request is valid. Verify that the CRS Node Manager is running.
PD [LN]	Text: Agent state login request failed: [error string] Type: Error Add'l Info: Could not log the agent in. Action: Verify the Desktop ID and password are correct and that the extension and agent is correctly configured in CallManager and CRS Node Manager.
PD [LN]	Text: Could not create thread, login failed. Type: Fatal Add'l Info: Application cannot create the thread to monitor the terminal. Action: In Task Manager, verify that the application is completely shut down and not running in the background, and restart the application.
PD [LN]	Text: Could not send set call data request to the telephony service. Type: Warn Add'l Info: A request sent to change call data failed. Action: Verify that the Desktop ID, password, and extension are correct, and that the CRS Node Manager is running.
PD [LN]	Text: Error answering call. Type: Warn Add'l Info: Call Control error. Cannot answer the call. Action: Check if the CallManager is still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.

Table 1. Error codes and descriptions

Error No.	Description
PD [LN]	<p>Text: Error complete conference call.</p> <p>Type: Warn</p> <p>Add'l Info: Call Control error. Cannot complete conference.</p> <p>Action: Check if the CallManager is still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.</p>
PD [LN]	<p>Text: Error complete transfer call.</p> <p>Type: Warn</p> <p>Add'l Info: Call Control error. Cannot complete transfer.</p> <p>Action: Check if the CallManager is still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.</p>
PD [LN]	<p>Text: Error Doing Device Snapshot</p> <p>Type: Error</p> <p>Add'l Info: Snapshot device request failed.</p> <p>Action: Verify that the Desktop ID, password, and extension are correct, and that the extension and agent are correctly configured in CallManager and CRS Node Manager. If there is a call, hang up and restart Agent Desktop.</p>
PD [LN]	<p>Text: Error drop a call.</p> <p>Type: Warn</p> <p>Add'l Info: Call control error. Cannot drop the call.</p> <p>Action: Check if the Call Manager and CRS Node Manager are still in service. If the service is running, try to shut down and restart Agent Desktop, or try to terminate the call manually. If unsuccessful, try another agent ID and password to log into your device.</p>

Table 1. Error codes and descriptions

Error No.	Description
PD [LN]	Text: Error holding call. Type: Warn Add'l Info: Call Control error. Cannot put the call on hold. Action: Check if the CallManager is still in service. If the service is running, try to shut down and restart Agent Desktop, or check to see if the call is active. If unsuccessful, try another agent ID and password to log into your device.
PD [LN]	Text: Error Login: There is no Host Name [LN]. Type: Fatal Add'l Info: The host name is empty. Action: Set up the host name in Administrator.
PD [LN]	Text: Error Login: There is no Port [port]. Type: Fatal Add'l Info: Port number is empty. Action: Set up the port number in Administrator.
PD [LN]	Text: Error making calls. Type: Warn Add'l Info: Call Control error. Cannot perform the required Make Call. Action: Check if the CallManager and CRS Node Manager are still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.
PD [LN]	Text: Error Redirect call. Type: Warn Add'l Info: Call Control error. Cannot redirect the incoming call. Action: Check if the CallManager and CRS Node Manager are still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.

Table 1. Error codes and descriptions

Error No.	Description
PD [LN]	<p>Text: Error send DTMF tone [tone].</p> <p>Type: Warn</p> <p>Add'l Info: Call Control error. Error in DTMF tone.</p> <p>Action: Check if the CallManager and CRS Node Manager are still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.</p>
PD [LN]	<p>Text: Error setup conference call.</p> <p>Type: Warn</p> <p>Add'l Info: Call Control error. Conference cannot be set up.</p> <p>Action: Check if the CallManager and CRS Node Manager are still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.</p>
PD [LN]	<p>Text: Error setup transfer call.</p> <p>Type: Warn</p> <p>Add'l Info: Call Control error. Transfer cannot be set up.</p> <p>Action: Check if the CallManager and CRS Node Manager are still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.</p>
PD [LN]	<p>Text: Error unholding call.</p> <p>Type: Warn</p> <p>Add'l Info: Call Control error. Cannot release the call from on hold.</p> <p>Action: Check if the CallManager and CRS Node Manager are still in service. If the service is running, try to shut down and restart Agent Desktop. If unsuccessful, try another agent ID and password to log into your device.</p>

Table 1. Error codes and descriptions

Error No.	Description
PD [LN]	<p>Text: Failed to establish session with CTI server.</p> <p>Type: Error</p> <p>Add'l Info: Could not connect to the CTI service.</p> <p>Action: Verify that the host and port are correct. Verify that the CallManager and CRS Node Manager are running.</p>
PD [LN]	<p>Text: Failed to establish socket to server side B [host name] at port [port number].</p> <p>Type: Fatal</p> <p>Add'l Info: Could not establish a socket connection with Side B.</p> <p>Action: Verify that the host and port are correct. Verify that CRS side B is in service.</p>
PD [LN]	<p>Text: Failed to establish socket to service side A [host name] at port [port number]</p> <p>Type: Fatal</p> <p>Add'l Info: Could not establish a socket connection with Side A.</p> <p>Action: Verify that the host and port are correct. Verify that CRS side A is in service.</p>
PD [LN]	<p>Text: INI file and path are too long.</p> <p>Type: Fatal</p> <p>Add'l Info: The application was not able to open the required .ini file.</p> <p>Action: Try reinstalling the application using the default path supplied in the installation program.</p>
PD [LN]	<p>Text: Initialization Failed, could not create message window.</p> <p>Type: Fatal</p> <p>Add'l Info: Unable to receive CTI events.</p> <p>Action: In Task Manager, verify that the application is completely shut down and not running in the background, and restart the application.</p>

Table 1. Error codes and descriptions

Error No.	Description
PD [LN]	<p>Text: No call appearances have been set up.</p> <p>Type: Fatal</p> <p>Add'l Info: The extension entered in the login screen was not written to phonedev.ini.</p> <p>Action: Be sure to enter an extension in the login screen.</p>
PD [LN]	<p>Text: OnControlFailureConf: FailureCode = [error code] [error string]</p> <p>Type: Error</p> <p>Add'l Info: A request sent to the CRS failed.</p> <p>Action: Verify that the Desktop ID, password, and extension are correct and that the extension and agent are correctly configured in the CallManager and CRS.</p>
PD [LN]	<p>Text: OnFailureConf: Failure Status Code = [error code] [error string]</p> <p>Type: Error</p> <p>Add'l Info: A request sent to the CRS failed.</p> <p>Action: Verify that the Desktop ID, password, and extension are correct, and that the extension and agent are correctly configured in CallManager and CRS.</p>
PD [LN]	<p>Text: OnFailureEvent: Failure Status Code = [error code] [error string]</p> <p>Type: Error</p> <p>Add'l Info: Indicates an error condition with the CRS engine and the agent desktop.</p> <p>Action: Verify that the Desktop ID, password, and extension are correct, and that the extension and agent are correctly configured in the CallManager and CRS.</p>

Table 1. Error codes and descriptions

Error No.	Description
PD [LN]	Text: Request to connect to CTI server failed. Type: Error Add'l Info: Request to connect to the telephony service failed. Action: Verify that the host and port is correct. Verify that CallManager and CRS are running.
PD [LN]	Text: Server login failed. Type: Error Add'l Info: Could not connect to the telephony service. Action: Verify that the host and port are correct. Verify that the CallManager and CRS are running.
RPS001	Text: An exception occurred calling ORB_init() Type: Error Add'l Info: Unable to start the CORBA service. Action: Restart the Recording & Playback service.
RPS002	Text: An exception occurred calling BOA_init(). Type: Error Add'l Info: Unable to start the CORBA service. Action: Restart the Recording & Playback service.
RPS004	Text: An exception occurred calling initializing the CORBA playback interface. Type: Error Add'l Info: Unable to start the CORBA service. Action: Restart the Recording & Playback service.
RPS006	Text: An exception occurred calling initializing the CORBA recording interface. Type: Error Add'l Info: Unable to start the CORBA service. Action: Restart the Recording & Playback service.



Table 1. Error codes and descriptions

Error No.	Description
<b>RPS100</b>	<p>Text: No audio path.</p> <p>Type: Fatal</p> <p>Add'l Info: The service was unable to determine the Audio Files path.</p> <p>Action: The Audio Files path is taken from LDAP. Check to see if LDAP is up and running.</p>
<b>RPS101</b>	<p>Text: Error opening registry: HKEY_LOCAL_MACHINE\SOFTWARE\Spanlink\Site Setup.</p> <p>Type: Fatal</p> <p>Add'l Info: The service was unable to read the value from the registry. The entry should have been created on install.</p> <p>Action: Reinstall the service if the entry is not in the registry.</p>
<b>RPS202</b>	<p>Text: Initializing the Winsock library failed.</p> <p>Type: Error</p> <p>Add'l Info: This error occurs when a command to control a playback session is issued and the indicated playback session does not exist in the service's internal list of playback sessions.</p> <p>The client functions that can generate this message include:</p> <p>PlaybackStop: Client tried to stop a playback session, but session not found.</p> <p>PlaybackSetPosition: Client tried to changed the current playback position but the session was not found.</p> <p>PlaybackPause: Client tried to pause a playback but the session was not found.</p> <p>PlaybackResume: Client tried to resume a paused playback but the session was not found.</p> <p>Action: Restart the Recording &amp; Playback service.</p>

Table 1. Error codes and descriptions

Error No.	Description
RPS203	<p>Text: Creating the listening socket failed.</p> <p>Type: Error</p> <p>Add'l Info: This error occurs when a command to control a playback session is issued and the indicated playback session does not exist in the service's internal list of playback sessions.</p> <p>The client functions that can generate this message include:</p> <p>PlaybackStop: Client tried to stop a playback session, but session not found.</p> <p>PlaybackSetPosition: Client tried to changed the current playback position but the session was not found.</p> <p>PlaybackPause: Client tried to pause a playback but the session was not found.</p> <p>PlaybackResume: Client tried to resume a paused playback but the session was not found.</p> <p>Action: Restart the Recording &amp; Playback service.</p>

Table 1. Error codes and descriptions

Error No.	Description
RPS204	<p>Text: Unable to retrieve local IP address for host name.</p> <p>Type: Error</p> <p>Add'l Info: This error occurs when a command to control a playback session is issued and the indicated playback session does not exist in the service's internal list of playback sessions.</p> <p>The client functions that can generate this message include:</p> <p>PlaybackStop: Client tried to stop a playback session, but session not found.</p> <p>PlaybackSetPosition: Client tried to changed the current playback position but the session was not found.</p> <p>PlaybackPause: Client tried to pause a playback but the session was not found.</p> <p>PlaybackResume: Client tried to resume a paused playback but the session was not found.</p> <p>Action: See the network administrator.</p>

Table 1. Error codes and descriptions

Error No.	Description
RPS205	<p>Text: The VPN thread failed to bind to the local address.</p> <p>Type: Error</p> <p>Add'l Info: This error occurs when a command to control a playback session is issued and the indicated playback session does not exist in the service's internal list of playback sessions.</p> <p>The client functions that can generate this message include:</p> <p>PlaybackStop: Client tried to stop a playback session, but session not found.</p> <p>PlaybackSetPosition: Client tried to changed the current playback position but the session was not found.</p> <p>PlaybackPause: Client tried to pause a playback but the session was not found.</p> <p>PlaybackResume: Client tried to resume a paused playback but the session was not found.</p> <p>Action: Restart the Recording &amp; Playback service.</p>

Table 1. Error codes and descriptions

Error No.	Description
RPS206	<p>Text: VPN thread failed to listen to the local address.</p> <p>Type: Error</p> <p>Add'l Info: This error occurs when a command to control a playback session is issued and the indicated playback session does not exist in the service's internal list of playback sessions.</p> <p>The client functions that can generate this message include:</p> <p>PlaybackStop: Client tried to stop a playback session, but session not found.</p> <p>PlaybackSetPosition: Client tried to changed the current playback position but the session was not found.</p> <p>PlaybackPause: Client tried to pause a playback but the session was not found.</p> <p>PlaybackResume: Client tried to resume a paused playback but the session was not found.</p> <p>Action: Do a netstat -a to see what process is holding up the port.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>RPS207</b>	<p><b>Text:</b> Create directory [directory], returned an error code [error code], string [error string].</p> <p><b>Type:</b> Error</p> <p><b>Add'l Info:</b> This error occurs when a command to control a playback session is issued and the indicated playback session does not exist in the service's internal list of playback sessions.</p> <p>The client functions that can generate this message include:</p> <p><b>PlaybackStop:</b> Client tried to stop a playback session, but session not found.</p> <p><b>PlaybackSetPosition:</b> Client tried to changed the current playback position but the session was not found.</p> <p><b>PlaybackPause:</b> Client tried to pause a playback but the session was not found.</p> <p><b>PlaybackResume:</b> Client tried to resume a paused playback but the session was not found.</p> <p><b>Action:</b> Verify:</p> <ul style="list-style-type: none"> <li>• if the directory listed is correct. It should be C:\Program files\Cisco\Desktop\...\Desktop_Audio or C:\Program files\Cisco\Desktop_Audio. If it is neither of these, contact TAC.</li> <li>• if the Cisco Desktop Recording Service user has permissions to create directories. By default, the service is running as a LOCAL_SYSTEM account. If this is not correct, see your system administrator to verify the permissions and change them as needed.</li> </ul>
<b>RPS405</b>	<p><b>Text:</b> impl_is_ready() returned. Shutting down the server thread.</p> <p><b>Type:</b> Error</p> <p><b>Add'l Info:</b></p> <p><b>Action:</b> None</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>RPS406</b>	Text: Caught a CORBA exception changing CORBA server to ready. Type: Error Add'l Info: Unable to start the CORBA service. Action: Restart the Recording & Playback service.
<b>SE [LN]</b>	Text: Call Chat server error. Error: [chat server error] Server: [LDAP server name] Port: [LDAP port] LCC: [logical contact center] Type: Error Add'l Info: An error was received while Supervisor was retrieving information from the Chat service. Action: Make sure the Chat service is properly installed and running.
<b>SE [LN]</b>	Text: Unable to log into the call chat server. Error: [chat server error] Server: [LDAP server name] Port: [LDAP port] LCC: [logical contact center] Type: Fatal Add'l Info: An error was returned while Supervisor was logging into the Chat service. Action: Make sure the Chat service is properly installed and running.
<b>SE [LN]</b>	Text: Unable to log into the Voice over IP Monitor Server. Type: Error Add'l Info: Supervisor is unable to get information from the Voice-over IP Monitor service. Action: Make sure the Voice-over IP Monitor service is running, and that the IP/Host name of LDAP is correct.

Table 1. Error codes and descriptions

Error No.	Description
<b>SE [LN]</b>	<p>Text: Unable to start monitoring agents. Error: [chat server error] Server: [LDAP server name] Port: [LDAP port] LCC: [logical contact center]</p> <p>Type: Error</p> <p>Add'l Info: An error was returned while Supervisor was attempting to begin monitoring agents.</p> <p>Action: Make sure the VoIP Monitor service is properly installed and running.</p>
<b>SL1000</b>	<p>Text: [application] Server failed to install. Error [reason].</p> <p>Type: Fatal</p> <p>Add'l Info: The service was not successfully installed.</p> <p>Action: Check to see if the service has already been installed.</p>
<b>SL1001</b>	<p>Text: Could not remove [application] Server. Error [reason].</p> <p>Type: Fatal</p> <p>Add'l Info: The service was not successfully removed.</p> <p>Action: Check to see if the service was not installed.</p>
<b>SL1002</b>	<p>Text: Invalid arguments. Exiting.</p> <p>Type: Fatal</p> <p>Add'l Info: Invalid command line arguments were passed to the service.</p> <p>Action: Ensure the arguments passing to the program are valid. Valid arguments are:</p> <ul style="list-style-type: none"> <li>-i: install service</li> <li>-f: run service as a foreground program</li> <li>-u: uninstall service</li> <li>-v: display version information</li> <li>none: run service</li> </ul>



Table 1. Error codes and descriptions

Error No.	Description
<b>SL1003</b>	Text: The Control Handler could not be installed. Type: Fatal Add'l Info: Error in registering the NT service control request handler. Action: This is a system error that requires development support. Contact technical support.
<b>SL1004</b>	Text: The initialization process failed. Type: Fatal Add'l Info: There was an error in starting the service. Action: This is program-specific. The Chat service does nothing that can cause this error.
<b>SL2000</b>	Text: Invalid request. Type: Error Add'l Info: An invalid command was sent to the service. Action: The program needs to send valid messages to the service.
<b>SL2017</b>	Text: Could not detach thread [thread name]. Type: Error Add'l Info: The thread could not be detached. System problem. Action: This is a system error that requires development support. Contact technical support.
<b>SL3025</b>	Text: Set Enterprise Data before Call Record is created. Type: Informational Add'l Info: An attempt was made to save an enterprise data variable while the call did not exist. Action: If this message appears often, your IVR script (or Agent) might be trying to set an enterprise variable either before the call has started or after a call has ended.

Table 1. Error codes and descriptions

Error No.	Description
<b>SL3026</b>	<p>Text: Failed to get device information from LDAP, return error [error description].</p> <p>Type: Informational</p> <p>Add'l Info: Unable to retrieve information on devices from LDAP because of the described error.</p> <p>Action: The error description should provide more information on why this happened.</p>
<b>SS1000</b>	<p>Text: Could not create thread [thread name]. Login failed. Exiting.</p> <p>Type: Fatal</p> <p>Add'l Info: Not able to create the named thread. System problem.</p> <p>Action: This is a system error that requires development support. Contact technical support.</p>
<b>SS1002</b>	<p>Text: Failed to setup monitor. Exiting.</p> <p>Type: Fatal.</p> <p>Add'l Info: Not able to set up monitoring of devices. Exiting program.</p> <p>Action: This message is displayed with another error that contains the reason for the problem. Consult that error for more details.</p>
<b>SS1003</b>	<p>Text: CTI Link or Switch Error [reason]. The CT Connect Server seems to be down. Retry logging in.</p> <p>Type: Fatal</p> <p>Add'l Info: Message displayed when the telephony service is down. The Enterprise Service will retry after some interval.</p> <p>Action: Make sure the telephony service is running.</p>
<b>SS1004</b>	<p>Text: Failed to setup monitor. Retry.</p> <p>Type: Fatal</p> <p>Add'l Info: The Enterprise service failed to set up device monitoring. It waits a specified interval and tries again.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>SS1005</b>	<p>Text: Failed to update the LDAP server.</p> <p>Type: Fatal</p> <p>Add'l Info: The Enterprise service was unable to update LDAP with the CORBA IOR.</p> <p>Action: Restart LDAP and then the Enterprise service.</p>
<b>SS1006</b>	<p>Text: Caught a CORBA exception.</p> <p>Type: Fatal</p> <p>Add'l Info: A CORBA error occurred.</p> <p>Action: Restart the Enterprise service. If the problem persists, stop the service and change the debug level to 5 in the debug log section of the configuration file. This will turn on the highest level of CORBA tracing.</p> <p>Run <b>CTI storage server.exe -f</b> from a command line and attempt to recreate the error.</p> <p>Use trace to identify the problem.</p>
<b>SS2000</b>	<p>Text: Monitored device ID not available. Return FAILURE.</p> <p>Type: Error</p> <p>Add'l Info: The event message did not have the device being monitored. Failed to handle event.</p> <p>Action: Telephony service error.</p>
<b>SS2001</b>	<p>Text: Error in updating call data. Return FAILURE.</p> <p>Type: Error</p> <p>Add'l Info: Error occurred in updating call data for the call.</p> <p>Action: This is a system error that requires development support. Contact technical support</p>
<b>SS2009</b>	<p>Text: Device not monitorable.</p> <p>Type: Error</p> <p>Add'l Info: There is an invalid agent extension.</p> <p>Action: Make sure the device specified is a valid agent device.</p>

Table 1. Error codes and descriptions

Error No.	Description
<b>SS2015</b>	<p>Text: Unable to open archive file [file name].</p> <p>Type: Error</p> <p>Add'l Info: Enterprise service was not able to write to the archive file.</p> <p>Action: Make sure that the .../Cisco/Desktop/Reports directory exists and has write permissions.</p>
<b>SS2016</b>	<p>Text: Error in registering ECC variables.</p> <p>Type: Error</p> <p>Add'l Info: ECC variable not administered on the CRS Node Manager.</p> <p>Action: There is an invalid/misspelled ECC variable name.</p>
<b>SS2017</b>	<p>Text: Could not detach thread [thread name].</p> <p>Type: Error</p> <p>Add'l Info:</p> <p>Action: This is a system error that requires technical support.</p>
<b>SS3028</b>	<p>Text: Layout [layout] does not have any datatypes associated with it. Please check configuration.</p> <p>Type: Informational</p> <p>Add'l Info: The specified layout does not have any datatypes associated with it.</p> <p>Action: This occurs if the user sets the layout variable to an invalid layout in the IPCC Express script.</p>

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## Services

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### Restarting Services

If you have to stop the services, you can restart them in any order through the Customer Response Solution Administration.

### Service Names/Executables

If you need to check if a service is running, use the following table to match what is shown in the Services window (accessed through the Windows Control Panel) with a particular executable.

**Table 1. Service Names and Executables**

<b>Service Name</b>	<b>Executable</b>
Cisco Desktop Call/Chat Service	FCCServer.exe
Cisco Desktop Enterprise Service	CTI Storage Server.exe
Cisco Desktop IP Phone Agent Service	IPPASvr.exe
Cisco Desktop LDAP Monitor Service	LDAPmonSvr.exe, slapd.exe, slurpd.exe
Cisco Desktop Licensing & Resource Manager Service	LRMServer.exe
Cisco Desktop Recording and Statistics Service	FCRasSvr.exe
Cisco Desktop Recording Service	RPServer.exe
Cisco Desktop Sync Service	DirAccessSynSvr.exe
Cisco Desktop VoIP Monitor Service	FCVoIPMonSvr.exe

## Converting Recordings From \*.raw to \*.wav Format

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Recordings made by supervisors are archived as raw voice data packets; they can only be reviewed using the Supervisor Record Viewer. However, if you wish to permanently save selected recordings as .wav files, you can use either of two methods:

- Using the “Play and Save” button in Supervisor Record Viewer and saving the recording to a selected folder
- Using the CRSraw2wav.exe command line utility

See the *Cisco Supervisor Desktop User's Guide* for information on saving recordings as .wav files through Supervisor Record Viewer.

### Using the CRSraw2wav Utility

This utility is located in the C:\Program Files\Cisco\Desktop\bin folder. It must be run from this location in a command window on the computer that hosts the Recording & Playback service (RPServer.exe).

Each .raw format recording is comprised of 2 files:

- <name>.to.raw, containing data sent to the agent phone
- <name>.from.raw, containing data sent from the agent phone

You need use only one of the file pair when running the utility. The utility finds the other file and combines the two files into one .wav file named <name>.wav.

The naming convention used for <name> is as follows:

<YYYYMMDD>\_<HHMMSS>\_<counter>\_<extension>\_<agent ID>

Where

<YYYYMMDD>Date the file was recorded

<HHMMSS>Time the file was recorded

<counter>Counter that is reset every time the agent logs in. It is incremented sequentially starting from 00000 every time a recording of that agent is made during that session.

<extension>The extension of the agent recorded

<agent ID>The ID of the agent recorded

The utility finds the location of the .raw files from the registry. If this information is not in the registry it assumes that the location is C:\Program Files\Cisco\Desktop\_Audio. The utility writes the converted .wav files to a folder it creates located at C:\Program Files\Cisco\Desktop\_wav.

The utility syntax is:

`CRSraw2wav.exe <filename>`

where <filename> is either the <name>.to.raw or <name>.from.raw file.

## Running CRSraw2wav in a Batch File

You can use the CRSraw2wav utility from a batch file that iterates through a wildcard-specified set of source files.

If the utility finds a .wav file with a name identical to one that is about to be created, the conversion is not executed.

**NOTE:** If the utility is halted prematurely, the .wav file being written at that time may be corrupted.

A batch file is a text file with a \*.bat extension. You can put DOS commands into this file and then run the file as if it were an executable.

For example, the following series of DOS commands can be put into a batch file called **convert.bat**:

```
c:\
cd c:\program files\cisco\desktop\bin
for %%c in (..\..\desktop_audio\*.raw) do crsraw2wav "%%~nc%%~xc"
```

These DOS commands cause all the \*.raw files in the C:\Program Files\Cisco\Desktop\_audio folder to be converted to \*.wav format and placed in the C:\Program Files\Cisco\Desktop\_wav folder, leaving the original \*.raw files in the Desktop\_audio folder.

Additional lines can be added to the batch file to copy the files to another folder or file server.

**NOTE:** The utility has a feature that prevents it from reconverting files that are already present in the Desktop\_wav directory, so the batch file does not have to explicitly check to see if the files have already been converted.

If you want the batch file to run automatically on specific days at a specific time, the Windows “at” command can be used.

For example, if you want convert.bat to run automatically every 13th and 23rd day of the month at 1:46 pm, do the following:

1. Put convert.bat in the C:\Program Files\Cisco\Desktop\bin folder.
2. Open a command window and enter the following DOS command:  

```
at 1:46p /every:13,23 cmd /c "c:\program  
files\cisco\desktop\bin\convert.bat" ^> c:\splkconvert.txt
```



## Network Interface Card Qualification (NICQ) Utility

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The Network Interface Card Qualification (NICQ) utility is available in CAD 6.4(2).

The NICQ utility performs three major functions:

- Validates NIC hardware for compatibility with CAD
- Provides information on which NICs can be supported by CAD
- Provides valuable data for troubleshooting issues with silent monitoring and recording

The NICQ utility (NICQ.exe) is located in the following folder (default location) on servers hosting the CAD VoIP Monitor service and all CAD client desktops:

C:\Program Files\Cisco\Desktop\bin

The NICQ utility runs a series of tests on all available NICs on a computer and report the results to the screen and to an output file. In order for all tests to run successfully, the system must be configured to expose the NIC to RTP traffic.

In order to validate whether a NIC will work properly with CAD, the NIC must be capable of capturing network traffic that is not directed to its IP address and make it available to an application. This is called “promiscuous mode”.

### Assumptions

It is assumed that the computer being tested is configured correctly, using either desktop monitoring or server monitoring.

- In desktop monitoring, an agent’s desktop is daisy-chained to the IP phone, then connected to the switch. RTP packets are captured by the packet-sniffing driver located on the desktop.
- In server monitoring, the VoIP Monitor service receives RTP traffic sent to its switch port by using the switch’s Switched Port Analyzer (SPAN) configuration.

### Utility Parameters

The syntax for the NICQ utility is:

NICQ.exe [-?] [-o outfile] [-t seconds] [-p ipaddr] [-s]

[Table 2](#) defines the available parameters.

**Table 2.      NICQ.exe Parameters**

-?	Causes the usage screen to be displayed.
-o	Defines the name of the file that will receive the results of the tests. By default, the file is named NICQ_Output.txt and is placed in the current folder.
-t	Indicates how long the utility will listen on each NIC for network traffic. The default is 20 seconds.
-p	Allows the IP address of the daisy-chained IP phone to be passed to the utility. You can use this if you know the IP address and don't want to take the time to detect it during test runs.
-s	Minimizes the additional system information that is collected and written to the output file. The collection step adds significant time to the length of the tests.

## Running the Utility

Before running the NICQ utility, generate RTP traffic to the desktop or server whose NIC is being tested. This is generally done by placing a phone call to the agent phone or simulating RTP traffic.

1. On the computer whose NIC is being tested, open a command window.
2. Navigate to the folder where NICQ.exe is located (by default, C:\Program Files\Cisco\Desktop\bin).
3. In the command window, type:  
`NICQ.exe`  
Consult [Table 2](#) for available parameters that can be added to the command.
4. When prompted, type **1** or **2** to select the type of system being tested:
  - Type 1 if your configuraiton has a daisy-chained IP phone and desktop monitoring.
  - Type 2 if your configuration uses SPAN (server monitoring) to send RTP traffic to the NIC.
5. The NICQ utility performs its testing. As it runs, it displays progress messages on the screen and writes detailed information to the output file.
6. When the utility has stopped, you can view the output file for detailed information on the test results.

## Output File

By default, all test results and system information are written to a file named NICQ\_Output.txt. This file might be quite large (500 KB or more) on some systems. The majority of this information is system information.

The output file contains the following data and sections:

- Date and time the test was run
- System name
- Results of each test for each NIC adapter on the system
- Configuration information retrieved from the web interface of the phone
- Registry dumps from the following locations:
  - HKLM/SYSTEM/CurrentControlSet/Services/Tcpip
  - All nodes under HKLM/SYSTEM/CurrentControlSet/Services whose name starts with the “{” character
  - HKLM/SYSTEM/CurrentControlSet/Control/Class/{4D36E972-E325-11CE-BFC1-08002BE10318} (information on network adapters)
  - HKLM/SYSTEM/CurrentControlSet/Control/Network
  - HKLM/SOFTWARE/Spanlink
- Output from msinfo32 for the following categories:
  - System Summary
  - Components—Network—Adapter
  - Components—Network—Winsock
  - Components—Storage—Drives
  - Components—Problem Devices
  - Software Environment—Drivers
  - Software Environment—Running Tasks
  - Software Environment—Loaded Modules
  - Software Environment—Services

## NICQ Tests

This section describes the functional areas that are tested and the specific tests that are run. The tests are executed in the order shown.

**Test 1—Check Driver Status**

Test	Corrective Action if Test Fails
Look for installed SPCD driver files	Reinstall the driver files or Cisco Agent Desktop application
Load the driver	Verify that the user account being used has administrator privileges  Verify that the files have been installed correctly, and reinstall if necessary

**Test 2—Retrieve List of Valid Network Adapters**

Test	Corrective Action if Test Fails
Retrieve list of valid adapters from registry	Verify that the OS is supported by the SPCD driver  Verify that the SPCD DLLs are in the system PATH  Verify that the user account can access the system registry  Check the network configuration on the machine and verify that at least one NIC adapter is defined for the TCP/IP subsystem

**Test 3—Capture Packets**

This test is run against every adapter found in Test 2. In this test, network traffic is captured and grouped according to the type of packet and identifies the sender and receiver. Only Ethernet traffic is captured. By default, the test is run for 20 seconds against each NIC; you can choose a different duration using the -t parameter when executing the utility.

If a call or simulated RTP stream is not active and the NIC being tested is not exposed to this traffic, no RTP packets will be seen.

These packet-sniffing tests are meant to verify that the NIC can be put into promiscuous mode in order to sniff network traffic not destined for the NIC card being tested. This is a basic requirement of the sniffing design used by CAD.

Test	Corrective Action if Test Fails
Open the adapter	Verify that system/kernel memory is not below 5 Mb  Verify that the driver is loaded

Test	Corrective Action if Test Fails
Capture network traffic	<p>Verify that the NIC is active</p> <p>Verify that the the NIC is connected to the network and that the cable is good</p> <p>Verify that network traffic is hitting the NIC. Another network monitoring tool like Wireshark or a Microsoft utility can be used to determine this. Running a browser and accessing non-cached pages from a web server will also determine this.</p>

#### Test 4—Detect Attached IP Phones

This test detects IP phones connected inline with the NIC/PC. It uses the data captured in Test 3. It looks for specific packets.

- If the IP phone uses SCCP (Skinny Client Control Protocol), the test looks for SCCP KeepAlive messages being sent from the IP phones to the Cisco Unified Communications Manager (Unified CM). These packets have a destination port of 2000 (default). If the port has been changed in the Unified CM, this test might fail.
- If the IP phone uses SIP (Session Initiation Protocol), the test looks for SIP REGISTER messages. These are similar to the KeepAlive messages in SCCP.

If you have more than one IP phone connected inline with the NIC, only one of them is reported, not both.

Test	Corrective Action if Test Fails
Check for SCCP KeepAlive messages	<p>Verify that the IP phone is connected inline with the NIC being tested</p> <p>Ensure that the phone uses SCCP</p> <p>Ensure that the IP phone is configured correctly in Unified CM to pass the traffic out its second network port</p> <p>Ensure that the SCCP port is 2000 in Unified CM</p> <p>Ensure that the capture time is long enough to capture the required number (3) of KeepAlive packets. Use the -t parameter to allow more time to capture packets. This might also be the case if the default SCCP KeepAlive refresh rate is changed from its default value of 30 seconds and the capture time is not at least 3 times this value.</p>

Test	Corrective Action if Test Fails
Check for SIP REGISTER messages	<p>Verify that the IP phone is connected inline with the NIC being tested</p> <p>Ensure that the phone uses SIP</p> <p>Ensure that the IP phone is configured correctly in Unified CM to pass the traffic out its second network port</p> <p>Ensure that the capture time is long enough to capture the required number (3) of REGISTER packets. Use the -t parameter to allow more time to capture packets. This might also be the case if the SIP KeepAlive refresh rate is changed from its default value of 18 seconds and the capture time is not at least 3 times this value.</p>

### Test 5—Detect Promiscuous Traffic

This test uses the data captured in Test 3. It verifies if the NIC supports promiscuous mode captures, and if valid RTP packets can be captured.

Test	Corrective Action if Test Fails
Check for promiscuous traffic	<p>Verify that a daisy-chained phone is configured to send voice traffic out its second network port</p> <p>Ensure that the capture time is long enough. Use the -t parameter to increase the time, if necessary.</p> <p>Ensure that there is promiscuous traffic available for the NIC to capture. Some reasons for no traffic are: the phone is not daisy-chained and there is no active call, or if using SPAN and there is no call on any of the SPAN source ports.</p> <p>Look for documented workarounds for this MIC to get it to work correctly in promiscuous mode</p> <p>Update driver to the latest version and retest</p>
Check for RTP traffic	<p>Ensure that there is a phone call or simulated RTP traffic exposed to the NIC being tested. Make a call to the IP phone.</p> <p>Ensure that the phone uses the correct codec (G.711 or G.729). Change the configuration in Unified CM so that a supported codec is used.</p>

### Successful Test Report Example

The following is an example of a successfully-run test. The system information is omitted.

The test results state whether the tests are passed and if the NICs will support the packet-sniffing solution used by CAD. If one or more tests fail, it might indicate that a particular NIC is not supported. However, it might also indicate that the configuration used in the test is not correct.

-----  
Test 1: Check Driver Status  
-----

Driver is properly installed.  
SPCD Driver service is running.  
Test 1: SUCCESS

-----  
Test 2: Get the List of Valid Network Adapters  
-----

Found 2 valid network interfaces:

Adapter 1:  
  Name: \Device\NPF{1AF9AAEF-7AD0-4795-98EB-11AA0C59A106}  
  IP: 10.10.49.117  
Adapter 2:  
  Name: \Device\NPF{06FF0278-AA0F-44C0-933F-220AD13FDDC2}  
  IP: 10.0.9.162

Test 2: SUCCESS

-----  
Test 3: Attempt to sniff packets on all valid network adapters  
-----

Device: \Device\NPF{1AF9AAEF-7AD0-4795-98EB-11AA0C59A106} (10.10.49.117)  
  Packet capture completed successfully

Sender	Receiver	Count	Packet Type
10.10.50.104	10.10.18.142	89	UDP/RTP: (0) PCMU (uLaw G.711 Audio)
10.10.18.142	10.10.50.104	89	UDP/RTP: (0) PCMU (uLaw G.711 Audio)
10.10.50.1	255.255.255.255	1	UDP (17)
10.10.50.1	255.255.255.255	2	ARP
10.10.50.104	172.17.12.20	1	TCP (6)
10.10.50.104	10.10.18.142	884	UDP/RTP: (0) PCMU (uLaw G.711 Audio)
10.10.18.142	10.10.50.104	884	UDP/RTP: (0) PCMU (uLaw G.711 Audio)
172.17.12.20	10.10.50.104	1	TCP (6)
10.10.50.1	255.255.255.255	12	UDP (17)
10.10.18.142	10.10.50.104	4	ARP
10.10.50.1	224.0.0.10	4	unknown (88)
10.10.49.108	10.10.49.255	1	UDP (17)
10.10.50.1	255.255.255.255	18	ARP
10.10.49.1	224.0.0.10	4	unknown (88)
10.10.50.104	10.10.18.142	2	ARP
10.10.49.117	172.17.10.18	46	TCP (6)
172.17.10.18	10.10.49.117	28	TCP (6)

Device: \Device\NPF{06FF0278-AA0F-44C0-933F-220AD13FDDC2} (10.0.9.162)  
  Packet capture completed successfully  
-----

Sender	Receiver	Count	Packet Type
--------	----------	-------	-------------

-----

Test 3: SUCCESS - One or more devices were able to capture packets

-----

Attempting to autodetect the attached phone

-----

Searching for phone on device: 10.10.49.117  
Detected phone with IP: 10.10.50.104

-----

Test 4 Attempt 1: Analyze Packet Capture Results

-----

Analyzing results for device: (10.10.49.117)  
Able to put adapter into promiscuous mode  
Able to detect RTP Audio packets  
Able to detect RTP Audio packets from phone (10.10.50.104)  
Test 4 Attempt 1: SUCCESS

-----

Information Retrieved from Phone

-----

IP Address:	10.10.50.104
MAC Address:	00062895B091
Host Name:	SEP00062895B091
Phone DN:	7639712175
App Load ID:	P00308000400
Boot Load ID:	PC03A300
Version:	8.0(4.0)
Model Number:	CP-7940

TFTP Server:	172.17.12.20
Operational VLAN ID:	110
CallManager 1:	SPLKCCMS Active
CallManager 2:	SPLKCCMP Standby
CallManager 3:	
CallManager 4:	
CallManager 5:	
DHCP Enabled:	Yes
PC Port Disabled:	No
SW Port Configuration:	AUTO
PC Port Configuration:	AUTO
Voice VLAN Enabled:	Yes
Security Mode:	Non Secure

\*\* Network Port Details \*\*

Neighbor Device ID:	Switch10_4.spanlink.com
Neighbor IP Address:	10.10.49.1
Neighbor Port:	FastEthernet0/3
Port Information:	Full, 100

\*\* Access Port Details \*\*

Neighbor Device ID:	
Neighbor IP Address:	
Neighbor Port:	
Port Information:	Full, 100

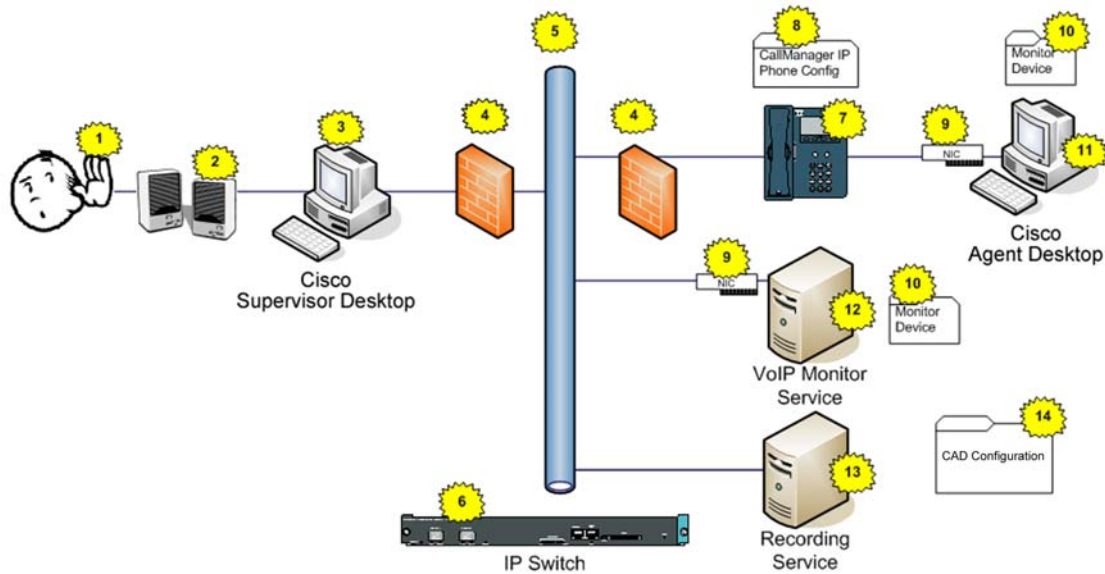


### Troubleshooting with the NICQ Utility

Figure 1 displays the major components involved when the silent monitoring or recording features are used in CAD. Components for both desktop and server monitoring are shown. The numbered starbursts indicate where a failure of a component or a configuration error can cause silent monitoring or recording to malfunction or fail.

Refer to Table 3 for possible causes of malfunction or failure at the corresponding numbered component.

**Figure 1. Major Components Involved with Silent Monitoring and Recording**



**Table 3. Possible Causes of Failure in Monitoring/Recording**

Number	Component	Issue
1	Supervisor	<ul style="list-style-type: none"> <li>Listening to the speakers of the correct computer?</li> </ul>
2	Speakers or headphones	<ul style="list-style-type: none"> <li>Are they broken?</li> <li>Do they have power?</li> <li>Are they plugged into the computer correctly?</li> <li>Are they turned on?</li> <li>Is the volume turned up?</li> </ul>

Table 3. Possible Causes of Failure in Monitoring/Recording — *Continued*

Number	Component	Issue
3	Supervisor workstation	<ul style="list-style-type: none"><li>• Is Cisco Supervisor Desktop running correctly?</li><li>• Any errors reported?</li><li>• Is the call still active?</li><li>• Are the callers speaking?</li><li>• Is silent monitoring or recording shown as “in service”?</li><li>• Is the PC hung?</li><li>• Is the network cable plugged in?</li><li>• Is the network cable good?</li><li>• Is there network connectivity?</li><li>• Is there available bandwidth on the network connection?</li><li>• Is the CPU usage too high due to excessive debugging or another application?</li></ul>
4	Firewalls	<ul style="list-style-type: none"><li>• Are the correct ports in the firewall open?</li><li>• Is VPN connectivity being used with an unsupported application?</li><li>• Can other PCs ping the supervisor’s IP address?</li></ul>
5	LAN	<ul style="list-style-type: none"><li>• Does the LAN lack bandwidth?</li><li>• Is other traffic moving smoothly over the network?</li></ul>
6	IP switch	<ul style="list-style-type: none"><li>• Are switch ports configured correctly?</li><li>• Is SPAN set up correctly?</li><li>• Is the switch running smoothly?</li></ul>

Table 3. Possible Causes of Failure in Monitoring/Recording — *Continued*

Number	Component	Issue
7	IP phone	<ul style="list-style-type: none"> <li>• Is the phone model supported for the type of monitoring being done?</li> <li>• Are the cables plugged in correctly?</li> <li>• Is the phone powered up?</li> <li>• Is it daisy-chained to the agent's PC?</li> <li>• Is the cable good?</li> <li>• Is it connected to the correct NIC on the agent's PC?</li> <li>• Is there more than one IP phone daisy-chained?</li> <li>• Is there a router between the phone and the PC?</li> <li>• Is the phone muted?</li> <li>• Does the handset work?</li> <li>• Can the other party on the call be heard on this phone?</li> <li>• Is the correct agent device being monitored?</li> <li>• Is there an active call?</li> <li>• Is it plugged into a switch port that is part of the SPAN?</li> </ul>
8	IP phone configuration	<ul style="list-style-type: none"> <li>• Is the phone configured correctly in Unified CM?</li> <li>• Is it set to send voice packets out the second network port?</li> <li>• Is it using a codec other than G.711 or G.729?</li> <li>• Is the phone shown as being registered and active?</li> <li>• Is extension mobility configured, and is the agent logged into the extension mobility service?</li> <li>• Is extension mobility configured correctly?</li> </ul>

Table 3. Possible Causes of Failure in Monitoring/Recording — *Continued*

Number	Component	Issue
9	NIC	<ul style="list-style-type: none"> <li>• Is the NIC installed properly?</li> <li>• Are the NIC drivers installed and running?</li> <li>• Are the drivers up to date?</li> <li>• Is this NIC known to be supported or not supported?</li> <li>• Are there additional configuration steps required to make this NIC work properly?</li> <li>• Is the phone properly connected to this NIC?</li> <li>• Is there more than one NIC on the PC?</li> </ul>
10	Registry entries	<ul style="list-style-type: none"> <li>• Is Cisco Agent Desktop installed correctly?</li> <li>• Is the Monitor Device entry in the registry correct for the NIC that is connected to the phone?</li> </ul>
11	Agent desktop	<ul style="list-style-type: none"> <li>• Is Cisco Agent Desktop installed correctly?</li> <li>• Is an unsupported soft phone being used?</li> <li>• Is unsupported VPN software being used?</li> <li>• Is the software reporting any errors?</li> <li>• Is the desktop monitor subsystem active and functioning?</li> <li>• Is there available CPU resources?</li> <li>• Is ther monitoring and recording features shown as “in service”?</li> <li>• Does the agent have an active call?</li> <li>• Is the SPCD driver running and loaded?</li> <li>• Are packets being captured from the NIC?</li> </ul>
12	VoIP Monitor service	<ul style="list-style-type: none"> <li>• Is the service installed correctly?</li> <li>• Is the service active?</li> <li>• Does the service have connectivity with other components and the required database?</li> <li>• Are there available CPU resources?</li> <li>• Are any errors being reported in the log files?</li> <li>• Is the SPCD driver running and loaded?</li> <li>• Are packets being captured from the NIC?</li> <li>• Is the server behind a firewall or router?</li> </ul>

Table 3. Possible Causes of Failure in Monitoring/Recording — *Continued*

Number	Component	Issue
13	Recording & Playback service	<ul style="list-style-type: none"><li>• Is the service installed correctly?</li><li>• Is the service active?</li><li>• Is the disk full?</li><li>• Does the recording file exist?</li><li>• is the server behind a firewall or router?</li></ul>
14	CAD configuration	<ul style="list-style-type: none"><li>• Is the agent configured correctly?</li><li>• Is the agent and his/her device configured for the correct method of packet sniffing?</li></ul>

## **Recovering the Directory Services Database**

### **Corrupted Directory Services Database**

If the Directory Services database becomes corrupted, follow these steps.

#### ***To recover the Directory Services database (Method 1):***

1. On the PC hosting the database, stop the Cisco Desktop LDAP Monitor Service.
2. Open a command window.
3. Change directories to ...Cisco\Desktop\bin (the drive and exact location of this directory depends on where the services were installed).
4. In the ...Cisco\Desktop\bin directory, type the command:  
`db_recover -h ../database -v`  
and press **Enter**.
5. Type **exit** and press **Enter** to close the DOS window.
6. Restart the Cisco Desktop LDAP Monitor Service.

If this procedure does not work, follow these steps.

#### ***To recover the Directory Services database (Method 2):***

1. On the PC hosting the database, stop the Cisco Desktop LDAP Monitor Service.
2. Open a command window.
3. Change directories to ...Cisco\Desktop\bin (the drive and exact location of this directory depends on where the services were installed).
4. In the ...Cisco\Desktop\bin directory, type the command:  
`slapcat -f slapd.conf -l backup.ldif -c`  
and press **Enter**.
5. Rename the existing folder ...Cisco\Desktop\database to ...Cisco\Desktop\old\_database.
6. Create a new folder called Cisco\Desktop\database.
7. Copy DB\_CONFIG and all files with a .dat extension from the **old\_database** folder to the **database** folder.
8. In the database folder, create an empty file called **rep.log**.
9. Open a command window.

10. Change directories to ...Cisco\Desktop\bin (the drive and exact location of this directory depends on where the services were installed).
11. In the ...Cisco\Desktop\bin directory, type the command:  

```
slapadd -f slapd.conf -l backup.ldif -c
```

and press **Enter**.
12. Type **exit** and press **Enter** to close the DOS window.
13. Restart the Cisco Desktop LDAP Monitor Service.

### Out of Sync Directory Services Databases

The secondary Directory Services database can become out of sync with the primary Directory Services database. A possible reason for this to occur is that the secondary database was reinstalled.

Follow these steps to sync up the two databases:

1. On the PC hosting the primary database, stop the Cisco Desktop LDAP Monitor service.  
  
The secondary LDAP can be down at this time.
2. Remove all contents from the files repl.log and repl.log.lock from the ...Cisco\Desktop\database folder.
3. Delete all files in the ...Cisco\Desktop\run\logs\replica, ...Cisco\Desktop\logs\replica, and ...Cisco\Desktop\logs\ReplLogs folders.
4. Open a command window on the primary database computer.
5. Change folders to ...Cisco\Desktop\bin (the drive and exact location of this folder depends on where the service was installed).
6. In the ...Cisco\Desktop\bin folder, type the command:  

```
slapcat -f slapd.conf -l backup.ldif -c
```

and press **Enter**.  
  
A file called **backup.ldif** is generated.
7. Copy the backup.ldif file to the computer on which the secondary LDAP service is installed, into the ...Cisco\Desktop\bin folder.
8. On the PC hosting the secondary database, stop the Cisco Desktop LDAP Monitor service if it is not already stopped.
9. Remove all contents from the files repl.log and repl.log.lock from the ...Cisco\Desktop\database folder.
10. Delete all files in the ...Cisco\Desktop\run\logs\replica, ...Cisco\Desktop\logs\replica, and ...Cisco\Desktop\logs\ReplLogs folders.

11. To remove the secondary LDAP database, delete all files except the following files from the ...\\Cisco\\Desktop\\database folder:
  - files with a .dat suffix
  - DB\_CONFIG
12. Open a command window on the secondary database computer.
13. Change folders to ...\\Cisco\\Desktop\\bin (the drive and exact location of this folder depends on where the service was installed).
14. In the ...\\Cisco\\Desktop\\bin folder, type the command:  

```
slapadd -f slapd.conf -l backup.ldif -c
```

and press **Enter**.
15. Type **exit** and press **Enter** to close the DOS window.
16. Restart the Cisco Desktop LDAP Monitor service on the secondary computer.
17. Restart the Cisco Desktop LDAP Monitor service on the primary computer.



## Diagnostic Procedures

---

### Basic Checks

When CAD has problems, check that:

- The computers that host CAD services, CallManager, CRS, and other system components are running.
- The registry is correct (see ["Registry Check" on page 153](#)).
- The network is set up correctly (see ["Network Check" on page 153](#)).
- The CAD services are running and active (see ["Active Service Check" on page 153](#)).
- The CAD Configuration Setup utility has run correctly. See the *CAD Installation Guide* for more information.

### Active Service Check

This applies only to the following services: LRM, Chat, Enterprise, Recording & Statistics, IP Phone Agent, and Sync.

#### For Nonredundant Systems

- Check the service's log file for a statement that the service is active.

#### For Redundant Systems

- Check the service's log file for a statement that the service is active.
- Only one instance of each service should be active at the same time. The other instance should be in standby mode.

### Registry Check

Using Windows Regedit:

- Verify that HKEY\_LOCAL\_MACHINE\Software\Spanlink\CAD\Site Setup exists and contains the entries specified in ["Site Setup" on page 30](#).
- Verify that the registry entries used by specific services exist and are valid. See ["Registry Entries" on page 30](#).

### Network Check

- On the CAD services computer, verify that the IP address in the registry value HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\Site Setup\IOR HOSTNAME is the correct IP address of the public NIC.

- To view information about the NICs on the computer, open a command window and type **ipconfig /all**.
- Verify that the hostname and IP address are as expected.
- Verify that the subnet mask is correct. It is probably **255.255.255.0**.
- If there are multiple NICs enabled, verify that the public NIC comes before the private NIC:
  1. In the Control Panel, double-click **Network and Dial-up Connections**.
  2. From the menu bar, choose **Advanced > Advanced Settings**.
  3. On the Adapters and Bindings tab, verify that the NICs are in the correct order in the **Connections** pane.
- Check the network connectivity by pinging from the CAD services computer to others in the configuration, for example, the CallManager computer. Then reverse it by pinging from the other computers to the CAD services computer. Do this using both hostnames and IP addresses and ensure that the ping results match.
- If hostnames are used, verify that the appropriate DNS, WINS, and hosts files are correct.
- If there is a problem connecting to a particular service, try typing **telnet <IP address/hostname> <port>** in a command window, where <IP address/hostname> is the IP address or host name of the computer where the service is running and <port> is the port used by the service.
- Use a network protocol analyzer like Ethereal ([www.ethereal.com](http://www.ethereal.com)) to analyze network communications.

## Memory Check

- Ensure that the amount of memory on the computer is at least the minimum required for CAD and other installed software. If the amount of memory is below the recommended level, it could be the source of the problem.
- Use Microsoft Perfmon (perfmon.exe) to perform most memory checking.
  - Add the following counters for \_Total and process of interest:
    - Private Bytes
    - Virtual Bytes
    - Handle Count
    - Thread Count

If the values for those counters keep growing without leveling or decreasing, it is likely the process has a memory leak.

If the values for those counters for a process are a significant part of the total memory used, it may be of concern. Note that certain processes will normally use more memory than others.

- Try rebooting the computer and see if it fixes the problem. Check how much and how fast processes increase their memory usage.

## CPU Check

- Ensure that the computer's processor is at least the minimum required for CAD and other installed software. If the processor is below the recommended level, it could be the cause of the problem.
- Use Task Manager to sort processes/applications by CPU usage. Check which process seems to be using the CPU most of the time.
- Use Windows Perfmon (perfmon.exe) for additional CPU checking.
  - Add the %Processor Time counter for Processor > \_Total and each CPU as well as Process > \_Total and process of interest.
  - Check which process seems to be using the CPU most of the time.
  - If the counter values for a process are a significant part of the total CPU use, it may be of concern. Short spikes are acceptable but a significant time with high CPU usage is of concern.
- Try rebooting the computer to see if it fixes the problem.

## Blocked Ports Check

To check whether a port is blocked:

- Using telnet:
  1. Ensure that the service is running and active.
  2. From the command line, type **telnet <hostname/IP address> <port>** and press **Enter**, where <hostname/IP address> is the hostname or IP address of the service computer and <port> is the port the service is listening on.
  3. If it is successful, the command window will clear with cursor at top left corner; you will need to close the window.
  4. If the telnet fails, you will probably see a connection failure.
- Check firewall settings on the client and server computers.
- Check firewall logs.

## Installation Problems

---

<b>Problem</b>	The CAD services have been upgraded from version 6.4(1) to version 6.4(2), and Automatic Updates are enabled. The CAD desktop applications should automatically update the next time they are started. However, some desktops do not upgrade so there are mixed CAD versions operating in the contact center.
<b>Solution</b>	The desktops that have not automatically upgraded must be upgraded individually from the CRS Administration web application. See the <i>Cisco CAD Installation Guide</i> for more information.

## CAD Service Problems

---

---

**Problem** How can I tell if a CAD service is running?

**Solution** To view the status of all the services in the CAD system, log into Cisco Response Solutions Administration. Select **System > Control Center**. Then select the server where the CAD services are located.

CAD services are now visible on the right panel. You can view their running status, and whether they are in an active (M) or standby (S) state.

---

**Problem** How can I check if the CRS services are running?

**Solution** Log into Cisco Response Solutions Administration. Select **System > Control Center**. Then select the server where CRS services are located.

CRS services are now visible on the right panel. You can view their running status, and whether they are in an active (M) or standby (S) state.

---

**Problem** When the user attempts to start Enterprise Service, the following error displays:

“Could not start the Cisco Desktop Enterprise Service on \\Computer  
Error 2140: An internal Windows NT error occurred.”

**Solution** Look at the Windows NT event log to see why the Service failed to start.

1. Click **Start > Programs > Administrative Tools > Event Viewer**.
2. On the **Log** menu, click **Application**.
3. Select a message that displays **Enterprise Server** as the source.  
This should provide more information on the cause of the failure.

---

**Problem** No screen pops appear when the user makes calls to and from devices.

**Solution** Try the following:

- Check to see if CTI Server is running.
- Check to see if an agent is logged in to the device.
- Check if the device is configured on CallManager.

---

**Problem** Enterprise data does not pop on the IP Phone Agent's IP phone when the phone rings or when it is answered.

**Solution** Verify that:

- the phone is associated with the **telecaster** user in CallManager.
- the authentication URL set up in CallManager uses an IP address instead of a hostname.
- the agent is logged into the phone.
- if the agent logs into Cisco Agent Desktop using the same phone and user ID, enterprise data does pops correctly.
- the user **telecaster** exists in CallManager and uses the password **telecaster**.
- Log the agent out, unplug the phone, and then plug it back in. This ensures there is a hard reset. This might be necessary if the phone previously pointed to a different CallManager.

---

**Problem** When trying to view agent state or call logs, no data is presented.

**Solution** The agent may not have received a call, or logged in for that particular day. The agent's or supervisor's PC's clock may not be in the correct time zone.

**NOTE:** All state and call times are based on server time.

---

**Problem** When monitoring an agent's customer contact, nothing can be heard, and after 15 seconds, an error message is received that no packets are being received. Attempting to record an agent's customer contact

results in an empty recording. The agent's desktop is monitored using desktop monitoring.

**Solution** The following device settings are required for desktop monitoring to function correctly with CAD. The settings are configured with the Cisco Unified CallManager Administration application.

**NOTE:** Not all devices or CallManager versions use all these settings. Configure those that do appear for your device and CallManager version.

In the Product Specific Configuration section of the Device Configuration screen, configure these settings as follows:

- PC Port—Enabled. If the PC Port is not enabled, the agent PC that is connected to the port will not have network access. No voice streams will be seen by the desktop monitor module.
- PC Voice VLAN Access—Enabled. If the PC Voice VLAN Access is not enabled, no voice streams will be seen by the desktop if the desktop is not a member of the same VLAN as the phone.
- Span to PC Port—Enabled. If the Span to PC Port is not enabled, the voice streams seen by the phone will not be seen by the desktop monitor module.

In the Device Information section of the Device Configuration screen, configure this setting as follows:

- Device Security Mode—Non-Secure or Authenticated. If the Device Security Mode is set to Encrypted, the voice streams can be seen but will not be converted correctly, causing the speech to be garbled.

You must also configure the agent phones to use the G.711 or G.729 Codecs. Other Codecs, such as G.722, are not supported for silent monitoring and recording.

---

**Problem** The CPU usage on the VoIP Monitor service PC has gone to 99%, and the PC has locked up.

**Solution** This can happen when you disable the sniffing adapter through the Windows Network and Dialup Connections window while the VoIP Monitor service is running. Re-enabling the sniffer adapter while the VoIP Monitor service is running will not solve the problem. You must stop the VoIP Monitor service, re-enable the sniffer adapter, and then restart the VoIP Monitor service to restore normal functionality.

- 
- Problem** The message, "At least one or more errors occurred during synchronization" appeared when the administrator performed synchronization in Desktop Administrator.
- Solution** Check the Sync service log file.
- If the logged error points to a problem with the Acmi connection, look for problems with the CTI Server. Also look for similar problems in the Enterprise Server logs.
  - If the logged error points to an LDAP error, make sure the LDAP service is running and the LDAP Host 1 registry setting in the following file has the correct value:  
`HKEY_LOCAL_MACHINE\SOFTWARE\Spanlink\CAD\Site Setup`
- 

- Problem** Voice traffic generated by Desktop Monitoring, the VoIP Monitor Service, and the Recording Playback Service is not tagged for QoS (quality of service).

- Solution** Winsock QoS is disabled for Windows XP and Server 2000/2003 by default, and must be enabled through the Windows registry.

Follow these steps to enable the QoS Setting for VoIP Services on Windows 2000, Windows XP, or Windows Server 2003:

If you are running Windows 2000:

1. In the Registry Editor, access the key  
`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TcpIp\Parameters`
2. On the Edit menu, click **Add Value**.
3. In the Value name box, type **DisableUserTOSSetting**.
4. In the Data Type list, click **REG\_DWORD**, and then click **OK**.
5. In the Data box, type a value of **0** (zero), and then click **OK**.

If you are running Windows XP or Windows Server 2003:

1. In the Registry Editor, access the key  
`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TcpIp\Parameters`
2. On the Edit menu, point to **New**, and then click **DWORD Value**.



3. Type **DisableUserTOSSetting** as the entry name, and then press **Enter**.

When you add this entry, the value is set to 0 (zero). Do not change the value.

4. Quit Registry Editor, and then restart the computer.

---

**Problem**      How can I tell if the Tomcat webserver is installed correctly?

**Solution**      Perform the following tests:

- Log into Cisco Response Solutions Administration. Select **System > Control Center**. Then select the server where CRS services are located. Verify that the CRS Administration is running.
- On the PC where the IP Phone Agent service is installed, check Services in the Control Panel to see if the IP Phone Agent service is running.
- Attempt to display the following page in your web browser without an error:

*http://IP address of the machine where Tomcat is installed:6203/ipphone/jsp/sciphonexml/IPAgentInitial.jsp*

If these tests fail, check the following:

JRE is installed on your PC.

The file that maps URLs with JSP pages to the correct java servlets, web.xml, must be in the C:\Program Files\vvfavvid\tomcat\_appadmin\webapps\ipphone\web-inf directory.

This entry must be set in the registry:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Spanlink\CAD\IPPA\Config\TOMCAT HOME = C:\Program Files\vvfavvid\tomcat\_appadmin\

---

**Problem**      slapd.exe is not running even though the Cisco Desktop LDAP Monitor service is running.

**Solution**      Do the following:

- Check slapd.conf to ensure it is correct.

- Make sure no other instances of slapd.exe are running.
- Make sure the C:\Program Files\Cisco\Desktop\database folder contains 7 files with a \*.dat extension and DB\_CONFIG. If these are missing, copy them from another system or reinstall the CAD services.
- Make sure the C:\Program Files\Cisco\Desktop\database folder contains log.\*, \_\_db.\* and 8 files with a \*.bdb extension. If not, follow the procedure in ["Out of Sync Directory Services Databases" on page 151](#), copying from the one that works to the one that does not. Otherwise, you will need to reinstall the CAD services.
- Get more information about why slapd.exe cannot start:
  1. Stop the Cisco Desktop LDAP Monitor service.
  2. Open a DOS command window and navigate to the C:\Program Files\Cisco\Desktop\bin folder.
  3. Enter slapd.exe -f slapd.conf and press Enter.
  4. If it aborts, use the resulting error messages to diagnose the problem.
  5. If it runs successfully, type Ctrl-C to end it.
  6. Check the Cisco Desktop LDAP Monitor service configuration file to make sure it is starting slapd.exe correctly.

---

**Problem** Clients are unable to connect to the LDAP service.

**Solution** Some solutions:

- The wrong IP addresses are set for LDAP Host 1 and/or LDAP Host 2 in the registry.
- The Cisco Desktop LDAP Monitor service is not running. Start it.
- Check if slapd.exe is running. If it is not running, follow the troubleshooting steps for this problem.
- The LDAP database is corrupted. Follow the steps outlined in ["Corrupted Directory Services Database" on page 150](#).

---

<b>Problem</b>	Clients do not find the same information from LDAP after failing over from one LDAP to the other.
<b>Solution</b>	<p>Some solutions:</p> <ul style="list-style-type: none"><li>■ Ensure replication is set up correctly.</li><li>■ Check that registry entries for LDAP Host 1 and 2 on both CAD services computers are the same and contain the right information.</li><li>■ Check that slapd.conf on both CAD services computers are correct and reference each other.</li><li>■ If all else fails, follow the steps outlined in <a href="#">"Out of Sync Directory Services Databases" on page 151.</a></li></ul>

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<b>Problem</b>	<p>The VoIP Monitor Service fails with the following exception when using server-based monitoring:</p> <p>FATAL FCVMS112 splk_pcap_open_live() failed. errorBuf = Error opening adapter: Access is denied.</p> <p><b>Conditions:</b> A second NIC is installed/enabled on the server. CAD Configuration Setup (PostInstall) is run to detect the second NIC and then the VoIP Monitor Service is restarted.</p>
<b>Solution</b>	<p>The splkpcap driver must be reinitialized. To do this, unload and then reload the driver. Open a command window on the computer where the new NIC was installed and type these commands:</p> <pre>net stop spcd net start spcd</pre> <p>Close the command window and start CAD Configuration Setup. In the VoIP Monitor Service window, select the IP address of the new NIC and save the changes.</p>

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<b>Problem</b>	<p>Users cannot log in to a CAD application. The error message, "Unable to connect to the Cisco CRS application server, please try again" is displayed.</p> <p><b>Conditions:</b> The ICM server's firewall is enabled.</p>
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**Solution** Exceptions must be made in the ICM server's firewall in order for the CAD applications to connect. This can be done through the use of a Cisco utility called ICMfwConfig, which is located on the ICM installation CD. This utility allows all traffic from ICM/IPCC applications through the firewall by adding the appropriate ports and applications to the firewall exception list. Use of this utility is documented in the *Security Best Practices Guide for ICM and IPCC Enterprise*.

## Cisco Agent Desktop Problems

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<b>Problem</b>	Partial call history or partial data appears in the Enterprise Data fields for calls right after a failover.
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**Symptom.** When an agent receives a call, the Enterprise Data pane and/or the Enterprise Call History pane does not display complete data for calls that began prior to or occurred during a failover.

**Cause.** The system might have active calls during failover. The Enterprise service tries to get call information for such calls by making a snapshot of the call. The snapshot does not provide complete call history, thus the missing data.

<b>Solution</b>	This is expected behavior. A call that occurs when the Enterprise service is up and running after a failover will have complete data.
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<b>Problem</b>	The CPU usage on the agent's PC has gone to 99%, and the PC has locked up.
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<b>Solution</b>	This can happen when you disable the sniffing adapter through the Windows Network and Dialup Connections window while Agent Desktop is running and is being monitored and/or recorded by the supervisor or recorded by the agent, using Desktop Monitoring. Re-enabling the sniffer adapter while Agent Desktop is running will not solve the problem. You must stop Agent Desktop, re-enable the sniffer adapter, and then restart Agent Desktop to restore normal functionality.
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<b>Problem</b>	An agent using Windows XP was able to start CAD, but was not able to enter an active state.
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<b>Solution</b>	Windows XP can be configured so that the Internet Connection Firewall (ICF) is active. ICF acts by keeping track of all traffic to and from the computer; it will only allow information through that has originated from that particular computer. If a message originates from outside the computer, it will be discarded.
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To solve this problem, either turn off ICF (requires someone with administrator rights to the computer) or override the defaults to include known “good” connections like the CAD servers.

---

<b>Problem</b>	The agent received the error message, “The agent- or workflow-initiated action request failed.”
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<b>Solution</b>	This error message is displayed when a request to the CRS engine, for example a call control action or agent state change, is rejected. Try the action again.
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<b>Problem</b>	The agent is unable to log in to Cisco Agent Desktop.
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**Symptom.** An agent receives an error message when trying to log in to Cisco Agent Desktop.

**Message.** The error message might be one of the following:

- Failed to login into CTI Manager Server! Please talk to your administrator.
- The ID you entered was not found.
- Unable to log agent in.
- A critical error has been received. Either your phone or the CallManager is offline. If you are not already logged out, you may need to logout and try to log in again.

**Cause.** Depending upon the error message, the cause could be one of the following:

- If the error message involves the CTI Manager Server, the problem might be that the Enable CTI Application Use is not configured for the agent user ID, the Cisco CTIManager service is not running on the Cisco CallManager server, or you are using an invalid password.
- If the ID you entered was not found, the ID could be invalid.
- If the agent cannot log in, the agent’s phone might not be associated with the RM JTAPI provider in the Cisco CallManager.
- If you receive the critical error message, the Cisco CallManager server might be offline or the Agent’s IP phone has reset.

- Solution**      Correct the problem related to the error message:
- If the message relates to the CTI Manager server, make sure that the Cisco CTIManager service is running on the Cisco CallManager server.
  - If the ID was not found, make sure that you are typing the user ID correctly. User IDs are case sensitive. Verify that you are using the correct Cisco CallManager password.
  - If the agent's phone is not associated with the RM JTAPI provider in CallManager, go to the User ID field in the Cisco CallManager IPCC Express Configuration web page, and associate the agent's phone with the RM JTAPI provider.
  - If you receive the critical error message, make sure that the CallManager server is online, and verify that the agent's phone is in service.
  - CallManager is up and running, provided the Cisco CRS setup is pointing to a cluster of CallManagers.

---

**Problem**      No data appears in the Enterprise Data fields

**Symptom.** When an agent receives a call, the Enterprise Data pane does not display the expected data.

**Message.** None.

**Cause.** The CRS server is not correctly passing enterprise data from the Enterprise service to Cisco Agent Desktop. This situation can be a result of incorrect step configuration in the script or in the Enterprise Data Configuration section of Cisco Desktop Administrator. This situation can also be a result of an out-of-sync condition between the Enterprise Data subsystem and the Enterprise service.

- Solution**      Complete the following steps:
1. Verify the step configuration in the script and in the Enterprise Data Configuration section in Cisco Desktop Administrator.
  2. Stop and restart the Enterprise service.
  3. If the problem persists, stop and restart the CRS engine.

<b>Problem</b>	Partial Service or No Service message displays in the Agent Desktop status bar
	<b>Symptom.</b> The agent sees a message in the Agent Desktop status bar.
	<b>Message.</b> Partial Service or No Service.
	<b>Cause.</b> Agent Desktop has detected that it is unable to communicate with a service (generally within three minutes of the service failure), and displays the “Partial Service” or “No Service” message to indicate some or all of the services have failed.
<b>Solution</b>	Double-click on the message in the status bar to display the Server Status popup window. This window lists AGent Desktop features and indicates which features are affected by the service failure. When CAD detects that the failed service is again available (usually within one minute of the service recovery) the status bar displays “In Service” to indicate that the service has recovered.

<b>Problem</b>	Agent toggles between Ready and Reserved states
	<b>Symptom.</b> The agent toggles between the Ready state and the Reserved state.
	<b>Message.</b> None.
	<b>Cause.</b> This might happen if a dial plan exists that starts with the same digit that the agent’s Cisco Unified Contact Center Express extension starts with. If the total number of digits in the agent’s extension in such a situation is less than the total number of digits configured for the dial plan, this symptom might occur.
<b>Solution</b>	Make sure that the following two things do not happen concurrently: <ul style="list-style-type: none"><li data-bbox="573 1512 1383 1570">■ An agent’s Cisco Unified Contact Center Express extension starts with a digit for which a dial plan exists in CallManager.</li><li data-bbox="573 1591 1383 1680">■ The total number of digits in the agent’s Cisco Unified Contact Center Express extension is less than the total number of digits configured for the dial plan.</li></ul>



<b>Problem</b>	<p>When agents start Agent Desktop, they see the following error: “A licensing error has occurred. Please try again in five minutes. If the problem persists, please see your log file or the System Administrator for details”</p> <p><b>Symptom.</b> Telnet tests from the agent PC to the LRM service on the CAD server (port 65432) fail. The LRM service is running and agents are able to connect some of the time. Cisco Security Agent (CSA) is installed and running on the CAD server.</p> <p>CSA log reports the following: “Event: Possible SYN Flood detected. Source addresses include 10.X.X.X. TCP ports, including port 59004, SYN Flood protection has been enabled.”</p> <p><b>Cause.</b> CSA is in SYN Flood detection mode. Agent PCs have the firewall enabled and are blocking packets, and CSA thinks the PC is non-responsive.</p>
<b>Solution</b>	<p>Short-term solution: Restart CSA on the CAD servers.</p> <p>Long term solution options include:</p> <ul style="list-style-type: none"><li><b>Option 1:</b> Leave the systems as is. Risk: SYN Flood detection mode might become enabled, which can prevent agents from logging in. If not discovered immediately, the problem can persist until SYN Flood turns off by itself (approximately 2 hours).</li><li><b>Option 2:</b> Turn off SYN Flood detection mode. Risk: Leaves the server open to SYN Flood.</li><li><b>Option 3:</b> Turn off Agent PC firewall. Risk: Could leave agent PCs vulnerable to viruses.</li></ul> <p>Recommendation: Option 2. SYN Flood is generally not effective against modern networks.</p>

---

<b>Problem</b>	<p>Every time the agent hangs up the telephone, Agent Desktop disappears.</p>
<b>Solution</b>	<p>In Normal mode, Agent Desktop automatically minimizes when there are no active calls. Set up this behavior in Desktop Administrator. To prevent the Agent Desktop window from minimizing, click the Preferences button on the toolbar and select Always Open or Always on Top.</p>

---

**Problem** The administrator has made changes in Desktop Administrator, but they are not showing up in Agent Desktop.

**Solution** Agent Desktop must be restarted in order for the changes to take effect.

---

**Problem** The agent has changed Agent Desktop's window behavior (from the File menu), but when Agent Desktop is restarted, the setting has not been saved.

**Solution** Changes made to local settings via Agent Desktop are only temporary overrides of the global settings. Permanent changes must be made via Desktop Administrator.

---

**Problem** Sometimes during a conference call, a conference member shows up as <Unavailable>.

**Solution** <Unavailable> represents a party outside the switch. The switch sends the trunk number of the external party to the desktop, where it has no meaning. Agent Desktop replaces the trunk number with <Unavailable>.

---

**Problem** The agent sent the supervisor an emergency chat message but the supervisor never received it.

**Solution** Supervisors receive emergency chat messages only if they are monitoring the team to which the agent who sent the message belongs.

---

**Problem** While running Agent Desktop, the error message, "Macro file failed to open," keeps appearing.

**Solution** Turn off any virus scanning applications on the desktop. Virus scanning applications attempt to intercept calls to open a file to do their own processing first. This might cause the file to be opened in such a way that restricts other applications from opening the file.

---

**Problem** The agent can't view any skills statistics in Agent Desktop.

**Solution** If an agent is not assigned to a skill group, no skills statistics are available.

---

**Problem** Sometimes after placing a call on hold, the agent is unable to retrieve the call. Once the call is hung up, the agent state still reflects On Hold. Exiting and restarting Agent Desktop doesn't help.

**Solution** A task in CallManager administration is associating devices with JTAPI users. The peripheral gateway JTAPI user should be associated with agent telephones. The IP IVR JTAPI user should be associated with the CTI ports corresponding to the virtual ports on the IP IVR.

Each of these device categories is distinct. A device cannot belong to more than one category. Failure to assign a device to exactly one category can cause problems.

---

**Problem** Sometimes while talking on a call, the agent is unable to change the agent state to Not Ready. As a result the agent keeps receiving calls from the ACD, even after closing the application.

**Solution** A task in CallManager administration is associating devices with JTAPI users. The peripheral gateway JTAPI user should be associated with agent telephones. The IP IVR JTAPI user should be associated with the CTI ports corresponding to the virtual ports on the IP IVR.

Each of these device categories is distinct. A device cannot belong to more than one category. Failure to assign a device to exactly one category can cause problems.

---

**Problem** The agent is using Cisco Desktop Agent with an IP soft phone (for instance, Cisco IP Communicator) on a computer with multiple network adapter cards. When the agent switches from using one NIC to the other to connect to the network, the agent cannot log in. (An example of this situation is running CAD with an IP soft phone on a laptop that can

connect to the network using either an Ethernet or wireless connection.)

**Solution** Each NIC has its own MAC address. The Cisco CallManager must be able to associate a MAC address with an extension in order for CAD to function correctly. If the CallManager knows about only one of the multiple NICs, only that one will work. If an agent is going to use a computer with multiple NICs, CallManager must be configured to recognize each NIC's MAC address.

---

**Problem** The agent is logged out unexpectedly.

**Solution** Possible reasons are:

- Another agent with the same ID or extension has logged in, causing the first agent to be logged out.
- A supervisor has logged the agent out.
- The telephony service has failed.
- The network has failed.

---

**Problem** The agent can make and receive internal calls but gets errors when trying to make an external call.

**Solution** The dial string properties must be configured properly for outgoing calls. Some switches are set up to automatically dial a 9 to get an outside line, while others require you to dial a 9. The dial string must take into account how the switch is set up.

---

**Problem** The agent's call control action does not work properly.

**Solution** Try performing the same action manually using the dial pad. Telephone numbers are formatted the same way when used in call control actions as they are when making calls manually. Make sure that the dial string is configured properly for outgoing calls.

---

**Problem** There are four actions assigned to an event, but only the first two run.

**Solution** When executing a set of actions, execution is halted if any of the actions fail. This is because some actions might depend on previous actions executing correctly. Find out why the third action is failing and correct it.

---

**Problem** The only phone book appearing on the dial pad dialog box is the recent call list.

**Solution** The administrator disabled the phone books.

---

**Problem** Global phone books appear but there is no personal phone book.

**Solution** The administrator disabled personal phone books.

---

**Problem** When editing a phone book, the agent can't add an entry after editing the first name, last name, or notes.

**Solution** The agent must enter a phone number before the Add button is enabled.

---

**Problem** The agent can edit the personal phone book, but not other phone books.

**Solution** The personal phone book is not shared by other agents. The other phone books are shared, and can be edited only by the administrator.

---

**Problem** The agent can't find the Log Viewer executable.

**Solution** Log Viewer is part of Agent Desktop, not a separate executable, and can be accessed by choosing the option **File—View Logs** from the Agent Desktop menu bar.

---

**Problem** When opening the Log Viewer, <N/A> is displayed in the first row.

**Solution** If there is no data for the selected day, the first row of the log viewer is filled with <N/A>.

---

**Problem** The agent changed the viewing options but pressed cancel. Why weren't the changes to the filters canceled?

**Solution** There is a cancel button for each of the filter dialog boxes. Once a filter has been accepted, it is saved. The cancel button on the options dialog box only cancels changes made to the columns.

---

**Problem** The keystroke macros do not play back correctly on dropped events.

**Solution** If Agent Desktop is running in normal mode (maximized when a call is received, and minimized when there are no call appearances), keystroke macros might play back to the wrong window. When Agent Desktop minimizes after a call is dropped, it steals focus from the target keystroke macro window. To fix this, place a [Delay]<milliseconds command at the beginning of the keystroke macro. This allows time for Agent Desktop to minimize before playing back the keystroke macro. For example:

```
[DELAY] 1000  
[APPLICATION:NOTEPAD=UNTITLED - NOTEPAD]
```

---

**Problem** Macros are not playing back correctly.

**Solution** When playing keystrokes to a window, Agent Desktop must first find the window. When recording the macro, Agent Desktop saves the window's title and class name (an internal Windows variable associated with a window). On playback, Agent Desktop searches in this order:

1. Find a window with the saved title and class name.
2. Find a window with the saved class name.
3. Find a window with the saved title.

If Agent Desktop does not find a window matching one or more of these criteria, it displays an error message.

If there are two windows with the same name and class, Agent Desktop might play back the macro to the incorrect window.

If there are several windows with the same class name, and the title of the target window has changed, Agent Desktop might play back the macro to the incorrect window.

Some compilers/class libraries use the same class name for all windows. If you have developed an in-house application, you might need to change the class name in your application.

---

<b>Problem</b>	A keystroke macro will not play back even though the target application is running.
----------------	---

<b>Solution</b>	Agent Desktop uses the application's class name and title to find the target application. Some applications change title and class name when changing screens. If this happens, Agent Desktop might not be able to locate the target application. Try using just the window title or class name to find the target application.
-----------------	---

**Example 1:** Find both the title (NOTEPAD) and class (UNTITLED - NOTEPAD).

```
[APPLICATION:NOTEPAD=UNTITLED - NOTEPAD]
[SHIFT] D
et cetera.
```

**Example 2:** Find just the class (NOTEPAD):

```
[APPLICATION:NOTEPAD=]
[SHIFT] D
et cetera.
```

**Example 3:** Find just the title (UNTITLED - NOTEPAD):

```
[APPLICATION:=UNTITLED - NOTEPAD]
[SHIFT] D
et cetera.
```

---

**Problem** The administrator created a macro and put in some delays. Now the PC appears to lock up while the macro runs.

**Solution** When a macro runs, the operating system takes over the PC and locks out all user input. This is a characteristic of the operating system. Try to minimize the length of time your macro runs.

---

**Problem** A keystroke macro plays the wrong keys to the wrong window.

**Solution** Make sure macro playback starts from the same place every time it runs. Have the macro start from the same starting window with the cursor in the same starting position as when the macro was recorded.

---

**Problem** When a macro is played back, it seems to be missing keystrokes, or the PC locks up.

**Solution** Due to the wide variety of systems and configurations, macro playback speed can vary. To slow down the rate at which a macro plays back keystrokes, add this section to the **fastcalllocal.ini** file:

```
[MacrosMisc]
DelayTime=n milliseconds
```

where *n milliseconds* is some value in milliseconds to delay between each macro event.

---

**Problem** After a macro runs, focus remains on the application to which it played. How can the macro be written to make it change focus to Agent Desktop (or some other application)?

**Solution** To change focus to Agent Desktop, edit the macro and insert this line at the end:

```
[APPLICATION:AGENT_DESKTOP=AGENT_DESKTOP]
```

You can also change focus to an application other than Agent Desktop. To determine the line to insert, create a dummy macro and play a few keystrokes to the application. When you finish recording, cut and paste



the application's text identifier from the dummy macro to the macro you wish to edit.

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|-----------------|---|
| <b>Problem</b>  | Sometimes when a macro is running, the PC appears to lock up for short periods of time.   |
| <b>Solution</b> | A [DELAY] statement in a macro causes the system user-input hook to keep control of the system. The PC runs but rejects all user input until the macro finishes playing. To limit this problem, use the shortest delays possible. |

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|-----------------|--|
| <b>Problem</b>  | The agent pressed Ctrl-Alt-Del while a macro was running, and now the Agent Desktop window is locked up.   |
| <b>Solution</b> | You cannot click <b>Start</b> or press <b>Ctrl-Break</b> , <b>Ctrl-Esc</b> , or <b>Ctrl-Alt-Del</b> when recording a macro. The Windows operating system unhooks the system keyboard hook when Start is pressed. |

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|-----------------|---|
| <b>Problem</b>  | The agent is participating in a blind conference call, but cannot see all parties on the call.  |
| <b>Solution</b> | In CAD 6.4, a blind conference is defined as adding an alerting party to a conference. All parties on a blind conference call might not show up in either Supervisor Desktop or Agent Desktop. This is a limitation of the Cisco CTI server software. |

## Work Flow

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|-----------------|--|
| <b>Problem</b>  | The administrator made some changes in Work Flow Setup, and then decided to cancel them. However, they were already saved. |
| <b>Solution</b> | When a new action is created, any changes are automatically saved before returning to the Select Action dialog box.        |

---

**Problem** The administrator cannot get a rule to work based on an internal extension number.

**Solution** When Agent Desktop compares the telephone numbers, if the dial string number format includes a leading x, then the telephone numbers in the list must also include a leading x.

---

**Problem** An action that launches an external application is not working correctly.

**Solution** Sometimes the operating system can be confused by spaces in directories and file names. If you have an application such as **C:\Program Files\Acme\Search Database.exe /t/x**, you might need to add quotes around the directory and executable. For example, the above would be **"C:\Program Files\Acme\Search Database.exe" /t/x**

---

**Problem** When Agent Desktop attempts to launch an external application, the following error message appears: "Error Launching Application...The system cannot find the file specified."

**Solution** When creating a launch external application action, you must include the extension of the application you wish to launch. For example, to launch Windows Notepad, **C:\Windows\Notepad.exe** is correct, while **C:\Windows\Notepad** is incorrect.

If the path to the executable or an argument contains spaces, it must be enclosed in quotes, for instance, **"C:\Program Files\MyFile.doc"**.

---

**Problem** The administrator configured a task button to send an email message, and changed the hint to Send Email (Ctrl + S). The shortcut keys do not work.

**Solution** For any task button, you can only change the hint text. You cannot change the shortcut key.

---

**Problem** An agent is able to log into Agent Desktop even though the phone extension used points to an incorrect instance of Unified CallManager

Express. When the extension is called, the caller hears a busy signal. Also, the agent sees an error message when changing to the Ready state.

**Cause.** In Unified CallManager Express (CME), there is no fixed association between agents and their extensions. An agent can log in with any extension that has “allow watch” enabled in Unified CME.

**Solution** Log into Agent Desktop using an extension that points to the correct Unified CME.

## Chat Problems

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**Problem** Chat and Supervisor Desktop do not work properly on PCs with multiple IP addresses.

**Solution** Chat and Supervisor Desktop are both CORBA servers and CORBA clients. When they start up, the CORBA service arbitrarily picks one on the IP addresses to use when forming its Interoperable Object Reference (IOR). The IOR is what clients (in this case, the client is the Chat Service) use to connect to the service (Chat or Supervisor Desktop). If one of the IP addresses is inaccessible to the Chat service, then it will be unable to send data to Chat or Supervisor Desktop.

You can force Chat and Supervisor Desktop to use a particular IP address by setting the environment variable OMNIORB\_USEHOSTNAME to the IP address that you wish to use. The variable must be set before starting Agent Desktop or Supervisor Desktop.

To set the environment variable:

**Windows NT:** In the Control Panel, double-click System. In the System Properties dialog, select the Environment tab. In the Variable field, enter OMNIORB\_USEHOSTNAME, and in the Value field, enter the IP address you wish to use. Click OK.

**Windows 2000:** In the Control Panel, double-click System. In the System Properties dialog, select the Advanced tab. Click the Environment Variable button and then Add to add OMNIORB\_USEHOSTNAME and the IP address to the System Variable list.

**Windows 98:** Open the autoexec.bat file. Add the command:

SET OMNIORB\_USEHOSTNAME=(IP address)

where (IP address) is the IP address you wish to use. Save the autoexec.bat file and reboot the computer.

---

**Problem** How can I tell if the Chat and LDAP servers are running?

**Solution** On the PC where the servers are installed, open Windows Control Panel and double-click **Services** (Windows NT) or **Administrative Tools > Services** (Windows 2000). The following 2 services should be listed:

- Cisco Desktop Chat Server
- Cisco Desktop LDAP Server

If their status is not **Started**, select them and click **Start**.

---

**Problem** After completing a conference call, Chat and Supervisor Desktop show an extra party on the call.

**Solution** Occasionally, each agent receives different data from the CTI server. For example, a customer (555-5555) calls Agent A. The CTI server reports 555-5555 as the calling number to Agent A. Agent A then conferences in Agent B. However, in this case the CTI server reports <Unavailable> as the customer number to Agent B. When the time comes to merge the data from the two agents (Agent A, Agent B, customer number, and <Unavailable>), an extra party is added because the customer number and <Unavailable> cannot be distinguished.

## Chat Service Problems

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<b>Problem</b>	<p>The following error occurs when trying to start the Chat service:</p> <p>Could not start the Chat Service on \\[computer] Error 2140: An internal Windows NT error occurred.</p>
<b>Solution</b>	<p><b>Windows NT:</b> Look at the Windows NT event log to see why the service failed to start.</p> <ol style="list-style-type: none"><li>1. Click <b>Start &gt; Programs &gt; Administrative Tools &gt; Event Viewer</b>.</li><li>2. On the <b>Log</b> menu, click <b>Application</b>.</li><li>3. Select a message that displays <b>Cisco Desktop Chat Server</b> as the source. This should provide more information on the cause of the failure.</li></ol> <p><b>Windows 2000:</b> Look at the Windows 2000 event log to see why the service failed to start.</p> <ol style="list-style-type: none"><li>1. Click <b>Start &gt; Settings &gt; Control Panel &gt; Administrative Tools &gt; Event Viewer</b>.</li><li>2. Click <b>Application log</b> in the tree control.</li><li>3. Select a message that displays <b>Cisco Desktop Chat Server</b> as the source. This should provide more information on the cause of the failure.</li></ol>

## **Cisco Desktop Administrator Problems**

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| <b>Problem</b>  | The following error appeared while attempting to install Desktop Administrator configuration files on a network drive:<br><br>“The drive does not support long file names. You must choose a drive that support long file names. See your network administrator for more information.” |
| <b>Solution</b> | You must enable long file name support on the network drive, or choose another drive that does support them. You can also install the configuration files on the administrator PC. You must enable File Sharing If you install the configuration files on the administrator PC.        |
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|-----------------|--|
| <b>Problem</b>  | The administrator cannot create a new work flow group.   |
| <b>Solution</b> | The work flow group name is already used for another group, and/or the work flow group name is not a valid Windows directory name. |
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|-----------------|---|
| <b>Problem</b>  | The administrator cannot restore a Desktop Administrator backup.  |
| <b>Solution</b> | The Desktop Administrator config directory is write-protected, and/or Desktop Administrator cannot create the config directory to which to restore the files. |

## Enterprise Data Problems

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<b>Problem</b>	Enterprise Data does not display data on outbound calls.
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<b>Solution</b>	Enterprise Data only displays data for inbound calls.
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<b>Problem</b>	Enterprise Data does not display data for inbound calls.
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<b>Solution</b>	All devices the call goes through must be on the list of monitored devices (in Desktop Administrator, click on Enterprise Data Configuration and select the Devices tab), or no data will be displayed. Make sure that the Enterprise service is properly installed and running. If everything appears to be working correctly, try rebooting the PC on which it is installed. After the PC has been rebooted, restart Agent Desktop at the agents' desktops.
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<b>Problem</b>	Enterprise Data displays data after a call has been dismissed.
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<b>Solution</b>	Enterprise Data displays data from the last call until a new call is received. This allows agents to use the enterprise data for after-call work.
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## Enterprise Service Problems

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**Problem** How can I check to see if Enterprise Service is completely installed?

**Solution** Open Windows Control Panel and double-click **Services**. The following two services should be listed:

- Cisco Desktop Directory Service
- Cisco Desktop Enterprise Server

If these are not listed, reinstall the Enterprise service.

---

**Problem** How can I tell if the LDAP service is running?

**Solution** Open Windows Control Panel and double-click **Services**. Check the status of **Cisco Desktop LDAP Monitor Service**; if the status is not **Started**, select it and click **Start**.

---

**Problem** How can I tell if the Enterprise service is running?

**Solution** Open Windows Control Panel and double-click **Services**. Check the status of **Cisco Desktop Enterprise Server**; if the status is not **Started**, select it and click **Start**.

---

**Problem** When the user attempts to start Enterprise Service, the following error displays:

“Could not start the Cisco Enterprise Service on \\Computer

Error 2140: An internal Windows NT error occurred.”

**Solution** Look at the Windows NT event log to see why the Service failed to start.

1. Click **Start > Programs > Administrative Tools > Event Viewer**.
2. On the **Log** menu, click **Application**.



3. Select a message that displays **Enterprise Server** as the source.  
This should provide more information on the cause of the failure.

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<b>Problem</b>	No screen pops appear when the user makes calls to and from devices.
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<b>Solution</b>	Try the following: <ul style="list-style-type: none"><li>■ Use Enterprise Administrator to make sure the device is being monitored.</li><li>■ Check to see if CTI Server is running.</li><li>■ Check to see if an agent is logged in to the device.</li><li>■ Check if the device is configured on Cisco Unified Contact Center Express.</li></ul>
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<b>Problem</b>	Nothing happens when the user calls a particular device.
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<b>Solution</b>	Try the following: <ul style="list-style-type: none"><li>■ Make sure the device is being monitored.</li><li>■ Check the NT event log to see if there are any error messages for the device.</li></ul>
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<b>Problem</b>	Incomplete or no enterprise data is displayed when an agent received a call.
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<b>Solution</b>	Try the following: <p>Check if the device is being monitored in the Enterprise service.</p> <p>Set debug range to 11. Stop and restart Agent Desktop. Repeat the call scenario, and then check ssctihandler.dbg for warnings about non-monitored devices. Search for “monitoring” in the debug file.</p>
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## **IPCC License Administration Problems**

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<b>Problem</b>	The message, "There are no licenses available. Please contract your Administrator for help," appeared.
<b>Solution</b>	All licenses are currently in use. Contact your sales representative to obtain additional licenses.

## Cisco IP Phone Agent Problems

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<b>Problem</b>	Agents do not see the IP Phone Agent service on their IP phones.
<b>Solution</b>	<p>The following are some reasons for the service to not appear when the Services menu is accessed:</p> <ul style="list-style-type: none"><li>■ The IPPA service has not been configured in CallManager.</li><li>■ The phone is not subscribed to the IPPA service.</li><li>■ The service URL in CallManager has a hostname and the phone cannot resolve it. Use the IP address instead.</li><li>■ The phone has not been rebooted after changes were made in CallManager. If a soft reboot does not work, try a hard reboot (unplug the phone's power cord and then plug it back in).</li></ul>
<b>Problem</b>	Agents see an HTTP error when selecting the IP Phone Agent service on their phone.
<b>Solution</b>	<p>Some solutions:</p> <ul style="list-style-type: none"><li>■ The IP Phone Agent service URL in CallManager has a hostname and the phone cannot resolve it. Use the IP address instead.</li><li>■ The IP Phone Agent service URL in CallManager has an incorrect hostname, IP address, or port. The port is specified in <code>&lt;Parameter name="port" value="6293"/&gt;</code> under the <code>&lt;!-- Normal HTTP --&gt;</code> section in <code>C:\Program Files\wfavvid\tomcat_appadmin\conf\server.MADM.xml</code>.</li><li>■ The IP Phone Agent service URL is case sensitive. Enter it exactly as specified in the <i>Cisco CAD Installation Guide</i>.</li><li>■ The Tomcat service is not running on the CAD services computer.</li><li>■ The IP Phone Agent service is not running on the CAD services computer.</li><li>■ The agent's phone was not rebooted after changes were made in CallManager. If a soft reboot does not work, try a hard reboot (unplug the power cord and plug it back in).</li></ul>

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**Problem** The agent sees an error message that the IP Phone Agent service is not active.

**Solution** Some solutions:

- The system is set up with redundant CAD services and the agent has selected the standby IP Phone Agent service instead of the active service. For redundant CAD services, there should be two IP Phone Agent services set up in CallManager, each pointing to a different IP Phone Agent service, and all IP Phone Agent agent phones must be subscribed to both services.
- On a nonredundant system, if the LRM service is down, then the IP Phone Agent service will become standby. Restart the LRM service.
- Desktop Administrator, Agent Desktop, or Supervisor Desktop was installed on the same computer as the CAD services. They clear a registry key (IOR Hostname under Site Setup) required by the IP Phone Agent service. Set the registry to the IP address of the CAD services computer.

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**Problem** The agent gets the Force Login screen when trying to log in, but attempting to force the login does not work.

**Solution** The agent is using an agent ID that is already logged in on another extension, or using an extension that is already logged in with a different agent ID. Forced logins work only for the same ID/extension pair. Use a different agent ID or extension, or find the other user and have them log out.

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**Problem** The agent does not see the Enterprise Data screen when receiving/answering a call, receive Skill Statistics screen updates, or see the Wrapup screen.

**Solution** Some solutions:

- The authentication URL in CallManager has a hostname and the phone could not resolve it. Use the IP address instead.
- If the CallManager authentication URL (one with authenticate.asp) is used, make sure that a telecaster user with a password of telecaster exists in CallManager and that the phone is associated with this user.

- The agent's phone was not rebooted after changes were made in CallManager. If a soft reboot does not work, try a hard reboot (unplug the power cord and plug it back in).
- Verify that the agent is logged in to the phone.
- Verify that if the agent logs into CAD using the same phone and user ID, enterprise data does pop correctly.

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<b>Problem</b>	The agent sees nonsense characters in reason code or wrapup data.
<b>Solution</b>	The reason codes or wrapup data configured in Desktop Administrator contain characters not supported by the phone. Examples are multibyte Chinese or Kanji characters. Make sure that no unsupported characters are used when configuring reason codes and wrapup data.

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<b>Problem</b>	A supervisor cannot record or monitor an IP Phone Agent agent.
<b>Solution</b>	The phone is not set up for SPAN port monitoring.

## **Recording & Playback Service Problems**

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<b>Problem</b>	The Recording & Playback service is not recording the audio file.
<b>Solution</b>	<p>Check the following:</p> <ul style="list-style-type: none"><li>■ Make sure that a SPAN port has been created on the switch for the PC's network port where the VoIP monitor service is connected.</li><li>■ Make sure that the Recording &amp; Playback service has permission to write to the AudioFiles directory.</li><li>■ If the audio files are saved on a drive using the FAT32 file system, there is a limitation of 21,844 objects in the folder. If the folder has reached this limit, delete unused audio files, or convert the drive to the NTFS file system.</li></ul>

To check the user of the service, open the Control Panel. Windows NT: double-click **Services**. In Windows 2000: double-click **Administrative Tools** and then **Services**.

Search for the service named Cisco Desktop Recording & Playback Service and click the Startup button. Account should be selected and a domain account given along with the password.

<b>Problem</b>	After CRS is upgraded or newly installed, recording does not function.
<b>Solution</b>	<p>The Recording Count parameter in CRS Administration must be changed from 0 a number up to 32 (Enhanced version) or 80 (Premium version).</p> <p>To change this parameter:</p> <ol style="list-style-type: none"><li>1. In CRS Administration, choose <b>System &gt; System Parameters</b> from the toolbar.</li><li>2. Scroll down the page to find the <b>Recording Count</b> parameter. The value is set at 0 (zero).</li><li>3. Change the parameter to either 32 (for CAD Enhanced) or 80 (CAD Premium) and then click <b>Update</b>.</li></ol>

## Recording & Statistics Service Problems

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<b>Problem</b>	The Recording & Statistics service is returning an error when retrieving the Global ID or it is returning zero (0).
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<b>Solution</b>	<p>Check the following:</p> <ul style="list-style-type: none"><li>■ Verify that the FCRasSvr database has been created in the SQL server. This will require the SQL server tool Enterprise Manager. Or, you can try creating an ODBC connection to the SQL server and try to select FCRasSvr as the database. It will not appear in the list if it does not exist.</li><li>■ Make sure that the server is connected to the database by checking the log file ...\\log\\FCRasSvr.log for the error string FCRVS306.</li></ul>
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If the database does not exist, run CAD Configuration Setup from Desktop Administrator. Using this tool, create the database. See the *Installation Guide* or the *Cisco Desktop Administrator User's Guide* for information on using CAD Configuration Setup.

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<b>Problem</b>	When trying to view agent state or call logs, no data is presented.
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<b>Solution</b>	The agent might not have received a call, or logged in for that particular day. The agent's or supervisor's PC's clock might not be in the correct time zone.
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**NOTE:** All state and call times are based on server time.

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<b>Problem</b>	Data appears to be in incorrect chronological order in Agent Desktop or Supervisor Desktop logs and reports, or in Supervisor Record Viewer. Cisco Unified Contact Center Express is in a redundant configuration, and a failover just occurred.
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<b>Solution</b>	If the system clocks on the redundant Cisco Unified Contact Center Express servers are not synchronized, report and log data will appear to be in the wrong order after a failover from one server to the other. To
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correct this situation, use a network time service to automatically synchronize all server system clocks, or manually adjust them so that they are in sync.



## **Silent Monitoring/Recording Problems**

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**Problem** When using desktop monitoring to monitor a remote CAD agent who uses the Cisco VPN Client 4.x to connect to the network, only the agent's side of the conversation is audible. The monitoring supervisor's computer uses the Windows 2000 operating system.

**Solution** When the monitoring supervisor uses a Windows 2000 desktop, and the remote agent uses VPN Client 4.x, only the agent's side of conversations will be heard. This is due to a problem with the VPN Client's virtual VPN adapter driver.

To fix the problem, do one of the following:

- Do not use a VPN connection.
- Do not use the Windows 2000 operating system to monitor remote agents who use VPN Client 4.x.
- Have the remote agent use VPN Client 3.x.
- Monitor the remote agent with server monitoring, not desktop monitoring.

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**Problem** The CPU usage on the VoIP Monitor service PC has gone to 99%, and the PC has locked up.

**Solution** This can happen in several scenarios. It may occur when you disable the sniffing adapter through the Windows Network and Dialup Connections window while the VoIP Monitor service is running. Re-enabling the sniffer adapter while the VoIP Monitor service is running will not solve the problem. You must stop the VoIP Monitor service, re-enable the sniffer adapter, and then restart the VoIP Monitor service to restore normal functionality.

This may also occur if you install Cisco Security Agent (CSA) and do not reboot the computer when prompted. Manually rebooting the computer will correct the situation.

**Problem** When the supervisor clicks on an agent to start monitoring, Supervisor Desktop displays the speaker icon next to the call but there is no sound.

**Solution** Check these things:

- Move the volume slider all the way to the right.
- Verify that the sound card in the PC is working properly.
- Check to see if another application is using the sound card. Some combinations of operating system, sound card, and drivers do not support multiple users.
- Verify that the agent is on a call, and is talking.

If using SPAN port (server-based) monitoring:

- Verify that the SPAN port on the switch has been configured correctly. If the monitor service has been moved, or new agent IP phones have been added, then you might need to reconfigure the SPAN port.
- Check the Windows NT/2000 application log on the Voice-Over IP Monitor service for errors.

If using desktop (agent-based) monitoring:

- Verify that the PC is connected to the phone in the 10/100 SW port.
- Verify that the agent PC is daisy-chained to the phone, which is connected to the network.
- Verify that the agent's PC is connected to the same IP phone that the agent is logged into.
- Verify that the CallManager has the correct MAC address for this extension.
- Verify that the agent's PC uses a NIC that is fully NDIS-compliant. For a procedure for testing if a NIC is fully NDIS-compliant, see Appendix C of the *Cisco CAD Installation Guide*.
- Desktop monitoring does not function with some NICs. The Intel PRO/100 and PRO/1000 NIC series are unable to detect both voice packets and data packets in a multiple VLAN environment, which prevents desktop monitoring from functioning properly. These NICs do not fully support NDIS Promiscuous Mode settings.

A workaround solution is available from the Intel Technical Support website (Solution ID: CS-005897). Other solutions

include using another type of NIC that is fully NDIS-compliant, and monitoring agents via a VoIP Monitor service.

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<b>Problem</b>	The supervisor clicks a recording in Supervisor Record Viewer, but it does not play.
<b>Solution</b>	<p>Check the following:</p> <ul style="list-style-type: none"> <li>■ Move the volume slider all the way to the right.</li> <li>■ Verify that the sound card in the PC is working properly.</li> <li>■ Check to see if another application is using the sound card. Some combinations of operating system, sounds card, and drivers do not support multiple users.</li> <li>■ Verify that the SPAN port on the switch has been configured correctly. IF the monitor service has been moved, or new agent IP phones have been added, then you might need to reconfigure the SPAN port.</li> <li>■ Check the Windows NT/2000 application log on the Voice-Over IP Monitor service for errors.</li> </ul>

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<b>Problem</b>	When monitoring an agent's customer contact, nothing can be heard, and after 15 seconds, an error message is received that no packets are being received. Attempting to record an agent's customer contact results in an empty recording. The agent's desktop is monitored using desktop monitoring.
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<b>Solution</b>	The following device settings are required for desktop monitoring to function correctly with CAD. The settings are configured with the Cisco Unified CallManager Administration application.
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**NOTE:** Not all devices or CallManager versions use all these settings. Configure those that do appear for your device and CallManager version.

In the Product Specific Configuration section of the Device Configuration screen, configure these settings as follows:

- PC Port—Enabled. If the PC Port is not enabled, the agent PC that is connected to the port will not have network access. No voice streams will be seen by the desktop monitor module.

- **PC Voice VLAN Access—Enabled.** If the PC Voice VLAN Access is not enabled, no voice streams will be seen by the desktop if the desktop is not a member of the same VLAN as the phone.
- **Span to PC Port—Enabled.** If the Span to PC Port is not enabled, the voice streams seen by the phone will not be seen by the desktop monitor module.

In the Device Information section of the Device Configuration screen, configure this setting as follows:

- **Device Security Mode—Non-Secure or Authenticated.** If the Device Security Mode is set to Encrypted, the voice streams can be seen but will not be converted correctly, causing the speech to be garbled.

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<b>Problem</b>	<p>The VoIP Monitor Service fails with the following exception when using server-based monitoring:</p> <p>FATAL FCVMS112 splk_pcap_open_live() failed. errorBuf = Error opening adapter: Access is denied.</p> <p><b>Conditions:</b> A second NIC is installed/enabled on the server. CAD Configuration Setup (PostInstall) is run to detect the second NIC and then the VoIP Monitor Service is restarted.</p>
<b>Solution</b>	<p>The splkpcap driver must be reinitialized. To do this, unload and then reload the driver. Open a command window on the computer where the new NIC was installed and type these commands:</p> <pre>net stop spcd net start spcd</pre> <p>Close the command window and start CAD Configuration Setup. In the VoIP Monitor Service window, select the IP address of the new NIC and save the changes.</p>

## Cisco Supervisor Desktop Problems

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**Problem** Error when trying to select skills in the Team View pane.

**Symptom.** When you try to select skills in the Team View pane in the Cisco Supervisor Desktop, the following message appears:

**Message.** Cisco Agent Desktop must be active before call intervention, call recording, and queue stats are available.

**Cause.** To view skill group statistics, you must log in to a Cisco Agent Desktop as a supervisor.

**Solution** Log in to a Cisco Agent Desktop as a supervisor.

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**Problem** Display of agents in Supervisor Desktop.

**Symptom.** The following symptoms related to the display of agents in the Supervisor Desktop can occur:

- Agents disappearing from Supervisor Desktop
- Agent not listed in Supervisor Desktop
- Supervisor Desktop does not display any agent

**Message.** None.

**Cause.** Incorrect configuration or IP connectivity issues between the Agent and the CRS system or the CRS system and the Supervisor.

**Solution** Complete the following steps:

1. Verify that the agent belongs to the team which the Supervisor is monitoring. Refer to the Team configuration in the *Cisco Desktop Administrator User Guide*.
2. Verify that all instances of Cisco Agent Desktop and Cisco Supervisor Desktop have been upgraded to the same version as the CAD services running on the CRS server.
3. Make sure the agent is not closing the Chat window. This is the element of the Agent Desktop software that sends information to the Chat server about the agent's status. The Chat server then relays these messages to the Supervisor for display.

4. Determine whether the Supervisor Desktop or Agent Desktop has multiple NICs.
5. Determine whether any ports in the 59000–59030 range are closed off by a firewall.
6. Go to **Local Area Connection settings > Advanced** tab to determine if the Agent Desktop or Supervisor Desktop running on Windows XP has the Internet Connection Firewall enabled.
7. To test for blocked ports, use telnet from the command line as follows with agent and supervisor logged in:
  - From Chat server to agent: telnet <agent PC IP address> 59020
  - From Chat server to supervisor: telnet <supervisor PC IP address> 59021
  - From agent to Chat server: telnet <CRS server IP address> 59000

If you get a failed to connect error, then you need to determine why the port is blocked.

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**Problem** Agent moved to Not Ready state for no apparent reason

**Symptom.** In some situations, an agent might be moved to the Not Ready state for no apparent reason.

**Message.** None.

**Cause.** To determine the reason, check the reason code:

- If the reason code is 32763, the agent went Not Ready because of Ring No Answer (RNA). If the agent phone is configured on CallManager with auto-answer enabled, then this is likely a CallManager issue since the call is not answered in time. Please consult CallManager support.
- If the reason code is 32759, the agent went Not Ready because the phone went out of service. Check to make sure the phone is still functional and that you can call the phone directly. If everything seems fine, it is most likely a temporary problem and the phone has since recovered. If the phone is still down, it is most likely a CallManager problem. Please consult CallManager support.

- If the reason code is 32757, the agent went Not Ready because the phone rehomed due to a CallManager failover. As long as the agent is able to go Ready after the failover, this is not an issue.

**Solution** In many cases, an agent going Not Ready is not a serious issue. Simply click the Ready button to move the agent to Ready.

To determine the reason code, do one of the following:

- Open the **Agent State Report**. From Cisco Agent Desktop, click the **Reports** button. Select **Agent IPCC Express State Log**. Look for the entry which says “Not Ready” at the time the agent went to Not Ready state. Check the reason code for this entry.
- Run the Agent State Detail Report, a CRS Historical Report, and look for the “Not Ready” entry of the agent at the time the agent went to Not Ready state. Check the reason code for this entry.

In situations where the agent is unable to go to Ready state because the phone is still down, contact Cisco CallManager support.

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**Problem** Agents who connect to the contact center through a VPN are not displayed in the Supervisor Desktop Team View pane. The agents disappeared from the Team View pane after disconnecting and then reconnecting to the VPN. The status bar displays In Service.

**Solution** If either agents or supervisors use a VPN connection, their desktops must be restarted after disconnecting and then reconnecting to the VPN.

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**Problem** A supervisor using Windows XP was able to start Supervisor Desktop, but was not able to load a team or display any agent information.

**Solution** Windows XP can be configured so that the Internet Connection Firewall (ICF) is active. ICF acts by keeping track of all traffic to and from the computer; it will only allow information through that has originated from that particular computer. If a message originates from outside the computer, it will be discarded.

To solve this problem, either turn off ICF (requires someone with administrator rights to the computer) or override the defaults to include known “good” connections like the CAD servers.

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**Problem** Chat and Supervisor Desktop do not work properly on PCs with multiple IP addresses.

**Solution** Chat and Supervisor Desktop are both CORBA servers and CORBA clients. When they start up, the CORBA service arbitrarily picks one on the IP addresses to use when forming its Interoperable Object Reference (IOR). The IOR is what clients (in this case, the client is the Chat Service) use to connect to the service (Chat or Supervisor Desktop). If one of the IP addresses is inaccessible to the Chat service, then it will be unable to send data to Chat or Supervisor Desktop.

You can force Chat and Supervisor Desktop to use a particular IP address by setting the environment variable OMNIORB\_USEHOSTNAME to the IP address that you wish to use. The variable must be set before starting Agent Desktop or Supervisor Desktop.

To set the environment variable:

**Windows NT:** In the Control Panel, double-click System. In the System Properties dialog, select the Environment tab. In the Variable field, enter OMNIORB\_USEHOSTNAME, and in the Value field, enter the IP address you wish to use. Click OK.

**Windows 2000:** In the Control Panel, double-click System. In the System Properties dialog, select the Advanced tab. Click the Environment Variable button and then Add to add OMNIORB\_USEHOSTNAME and the IP address to the System Variable list.

**Windows 98:** Open the autoexec.bat file. Add the command:

```
SET OMNIORB_USEHOSTNAME=<IP address>
```

where <IP address> is the IP address you wish to use. Save the autoexec.bat file and reboot the computer.

---

**Problem** When the supervisor clicks on an agent to start monitoring, Supervisor Desktop displays the speaker icon next to the call but there is no sound.

**Solution** Check these things:

- Move the volume slider all the way to the right.
- Verify that the sound card in the PC is working properly.



- Check to see if another application is using the sound card. Some combinations of operating system, sounds card, and drivers do not support multiple users.
- Verify that the agent is on a call, and is talking.
- Verify that the SPAN port on the switch has been configured correctly. IF the monitor service has been moved, or new agent IP phones have been added, then you might need to reconfigure the SPAN port.
- Check the Windows NT/2000 application log on the Voice-Over IP Monitor service for errors.

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<b>Problem</b>	The supervisor cannot log into the Voice-Over IP Monitor service, and receives the error "Could not access sound card".
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<b>Solution</b>	<p>The Voice-Over IP Monitor service was unable to find or access the system sound card. Make sure the sound card is working properly:</p> <ul style="list-style-type: none"><li>■ Click <b>Settings &gt; Control Panel &gt; Sounds</b> and try to play a sound .wav.</li><li>■ Click <b>Settings &gt; Control Panel &gt; Multimedia &gt; Audio &gt; Playback &gt; Preferred Device</b> to make sure the correct device is selected.</li></ul>
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<b>Problem</b>	The sound quality is poor, and sounds choppy like a motorboat.
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<b>Solution</b>	<p>Try this:</p> <ul style="list-style-type: none"><li>■ Adjust the Sound Buffers registry entry. Set it higher; and if that doesn't work set it down to 3 and work your way up.</li><li>■ Adjust the Jitter Buffer registry entry. It should be at least 400; try setting it higher. If that doesn't work you might have to use a different sound card.</li></ul>
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<b>Problem</b>	The sound is lagged. There is a noticeable delay between when the agent speaks and when I hear the sound on the PC sound card.
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<b>Solution</b>	<p>A little lag time is normal. Since the voice is being sent in discrete packets across the network, which might have some delay variance. The software buffers up a few seconds before playback. Try adjusting</p>
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the Jitter Buffer registry entry. You might be able to set it as low as 50 ms, however, if the network gets congested this might cause the monitor to sound choppy.

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**Problem** The supervisor doesn't see any of his teams or other personalized settings in the Supervisor Desktop window.

**Solution** If you add Supervisor Desktop to your Startup menu and your configuration files are on a network, it is possible that your configuration files aren't loaded before Supervisor Desktop starts because your PC hasn't had time to map the network drives. As a result, your personalized settings will not show.

Close Supervisor Desktop and start it again, and your personal settings will be loaded. To avoid the problem in the future, remove Supervisor Desktop from the Startup menu, and create a desktop shortcut icon to use to start the program.

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**Problem** The supervisor scrolled the Data View (or Message View) pane sideways to view more information, and the toolbar icons disabled.

**Solution** Click anywhere in the Team View pane to enable the toolbar again.

---

**Problem** The supervisor clicked the Record button to record an agent conversation and nothing happened.

**Solution** There is no visible message displayed if a recording fails. If nothing happens, assume that the request failed. You will know that a recording succeeds if the icon next to the agent's conversation in the Team View pane changes to the recording icon.

---

**Problem** The supervisor tried to change an agent's state and nothing happened.

**Solution** There is no visible message displayed if an agent state change request fails. If nothing happens, assume that the request failed. You will know that an agent state change succeeds if the icon next to the agent's name in the Team View pane changes to the current agent state icon.

---

**Problem** Supervisor Desktop is no longer displaying any skills statistics.

**Solution** The supervisor is also an agent logged into the ACD. If the supervisor is inactive (in the Not Ready state) long enough he or she is logged out of the ACD.

The supervisor should log back in to see skills statistics again. A workaround to the logout situation is to create a skill group that has only supervisors in it and that does not receive ACD calls. The supervisors can then place themselves in the Ready state and remain logged in as long as necessary.

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**Problem** The supervisor clicks a recording, but it does not play.

**Solution** Check the following:

- Move the volume slider all the way to the right.
- Verify that the sound card in the PC is working properly.
- Check to see if another application is using the sound card. Some combinations of operating system, sounds card, and drivers do not support multiple users.
- Verify that the SPAN port on the switch has been configured correctly. IF the monitor service has been moved, or new agent IP phones have been added, then you might need to reconfigure the SPAN port.
- Check the Windows NT/2000 application log on the Voice-Over IP Monitor service for errors.

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**Problem** After completing a conference call, Chat and Supervisor Desktop show an extra party on the call.

**Solution** Occasionally, each agent receives different data from the CTI server. For example, a customer (555-5555) calls Agent A. The CTI server reports 555-5555 as the calling number to Agent A. Agent A then conferences in Agent B. However, in this case the CTI server reports <Unavailable> as the customer number to Agent B. When the time comes to merge the data from the two agents (Agent A, Agent B, customer number, and <Unavailable>), an extra party is added because the customer number and <Unavailable> cannot be distinguished.

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<b>Problem</b>	Supervisors are getting randomly logged out of the Chat service.
<b>Solution</b>	If a supervisor attempts to log into the Chat service with the same ID as another supervisor, the Chat service logs the first supervisor out. To avoid this problem, make sure that each supervisor has a unique ID. The ID is the extension stored in Phonedev.ini (located in the config folder). Phonedev.ini is populated with the extension field from the Login dialog box when Agent Desktop is started.

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<b>Problem</b>	The supervisor starts recording an agent's conversation, but after a short time the recording stops by itself.
<b>Solution</b>	Check to make sure that no other supervisors are currently viewing the same team of agents. Any supervisor using Supervisor Desktop can see all conversations being recorded, and can stop a recording of an agent conversation even if that supervisor did not initiate the recording.

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<b>Problem</b>	The supervisor is viewing a blind conference call, but cannot see all parties on the call.
<b>Solution</b>	In CAD 6.4, a blind conference is defined as adding an alerting party to a conference. All parties on a blind conference call might not show up in either Supervisor Desktop or Agent Desktop. This is a limitation of the Cisco CTI server software.

## Sync Service Problems

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**Problem**      How can I tell if the Sync service is running properly?

**Solution**      In Desktop Administrator, perform a manual synchronization for a specific logical contact center. Make sure that all agents, supervisors, and teams are correctly listed for that logical contact center.

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**Problem**      The message, “At least one or more errors occurred during synchronization” appeared when the administrator performed synchronization in Desktop Administrator.

**Solution**      Check the Sync service log file.

If the logged error points to IPCC Express database ODBC connection failure, then make sure that:

- the user ID and password in the Sync service configuration file is a valid IPCC Express database user.
- the user account that the Sync service is running has privileges to open a Name Pipe connection/
- the manual connection through the Sync service DSN works.

If the logged error was “...could not prepare SQL statement” then make sure that the IPCC Express peripheral ID key that is under `LCC\Application Data\Site Setup` in LDAP has a value.

If the logged error points to LDAP connection failure, then make sure that the LDAP service is running and that the `LDAP_HOSTA` registry setting in `HKEY_LOCAL_MACHINE\SOFTWARE\Spanlink\Site Setup` has the correct value.



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# Using Multiple NICs with the VoIP Monitor Service



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## Overview

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The VoIP Monitor service sniffs RTP traffic from the network and sends it to registered clients. This requires support from the switch to which the service is connected.

The VoIP Monitor service must be connected to the destination port of a configured SPAN/RSPAN. Any traffic that crosses the SPAN/RSPAN source ports is copied to the SPAN/RSPAN destination port and consequently is seen by the VoIP Monitor service.

Not all Catalyst switches allow the VoIP Monitor service to use the SPAN port for both receiving and sending traffic. There are switches that do not allow normal network traffic on a SPAN destination port. A solution to this problem is to use two NICs in the machine running the VoIP Monitor service:

- One NIC for sniffing the RTP streams, connected to the SPAN port
- One NIC for sending/receiving normal traffic, such as requests from clients and sniffed RTP streams, connected to a normal switch port not monitored by the above-mentioned SPAN port.

There may be other reasons for using a second NIC dedicated to receiving RTP traffic. The information shown below details the configuration of the second NIC to allow CAD's Silent Monitoring and Recording features to work properly.

Consult the *Cisco Agent Desktop (CAD) and CTI Toolkit Desktop Silent Monitor – Reference Information* for the most recent information on compatible NICs. This document is located at:

[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)

## Limitations

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Since Cisco Unified Communications Manager does not support two NICs, using multiple NICs works only in configurations where Cisco Unified Communications Manager is not co-resident with the VoIP Monitor service.

CAD's packet sniffing library works only with NICs that are bound to TCP/IP. Make sure the sniffing card is bound to TCP/IP.



## Issues

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The VoIP Monitor service explicitly specifies what NIC adapter to use for capturing audio packets, but it does not specify which NIC should be used when sending out packets. These outgoing packets would be going to either the Recording & Playback service or a supervisor's desktop that is silently monitoring an agent's call. This is not a problem when using a single NIC for both sniffing and normal traffic. With two NICs, however, normal traffic should be restricted so that it does not go through the NIC used for sniffing. Otherwise, the sniffed RTP streams of a currently-monitored call might not reach the supervisor because the SPAN destination port does not allow outgoing traffic.

To resolve this, use the route command to customize the static routing tables so that normal traffic does not go through the sniffing NIC. Contact your network administrators for details.

An alternative solution is to give the sniffing NIC an IP address that no other host on the network uses, and a subnet mask of 255.255.255.0. Leave the default gateway field blank for this NIC's TCP/IP binding.

In addition to these steps, the NIC that is used by the VoIP Monitor service must not be the first NIC in the network binding order. By default, the first NIC adapter in the binding order will be used by applications to send traffic out to the network. Contact your network administrator for details.

Uninstalling and installing NICs may cause the binding order of the systems network adapters to change. Whenever these kinds of changes are made, the binding order may need to be changed manually.

## Installing a Second NIC on a VoIP Monitor Service Computer

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*To install a second NIC on a VoIP monitor service computer:*

1. Shut down the computer.
1. Install the second NIC in the computer.
2. Start the computer.
3. Make sure that neither adapter is using dynamic host configuration protocol (DHCP) to get its IP address.
4. Assign valid IP addresses to the adapters.
5. Determine which of the two adapters will be used for sniffing.
6. Connect the sniffing adapter to the switch SPAN port.
7. Use the route command to customize the local routing table so that normal traffic does not go through the sniffing adapter.
8. Verify that the sniffing adapter is not registered with DNS and WINS by using the following command:

```
ping local_host_name
```

Where *local\_host\_name* is the IP address or DNS name of the adapter. This ensures that the local name always resolves to the normal traffic card IP address.

Verify that the sniffing adapter is not the first adapter in the system's binding order.

### Additional Configuration Steps

The CAD installation process offers the user the option to choose the IP address that the VoIP Monitor service will use for packet sniffing. In a system with multiple NICs, the first adapter found is the default network adapter becomes the sniffing adapter. This may not be the adapter you want to use.

To change the NIC that is used by packet sniffing, use the CAD Configuration Setup utility. See the *CAD Installation Guide* for more information. This utility contains a screen that lists all valid NIC adapters in the system by IP address. Simply select the IP address associated with the NIC configured for packet sniffing and save your changes. This information is used by the VoIP Monitor service the next time the service is started.

To uninstall or reinstall the packet sniffing NIC or install a different packet sniffing NIC, use the CAD Configuration Setup utility as described above. If you do not use the

CAD Configuration Setup utility to point to the correct packet sniffing NIC, the silent monitoring and recording features may not work.

You do not need to perform these additional steps in a single-NIC system after you install CAD. If you uninstall and reinstall the packet sniffing NIC in a single-NIC system or install a different packet sniffing NIC in a single-NIC system, use the CAD Configuration Setup utility as described above. If you do not use the CAD Configuration Setup utility to point to the correct packet sniffing NIC, the silent monitoring and recording features may not work.



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