



## Troubleshooting CiscoWorks 2000

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### Objectives

The main objective of this chapter is to present troubleshooting information for problems commonly encountered when installing and using CiscoWorks 2000 (RME 2.2 and CWSI 2.4). It contains the following sections:

- Introduction to the Network Management Products Family CiscoWorks 2000
- Troubleshooting Information for CiscoWorks 2000 Installation and Setup
- Methods for Evaluating and Troubleshooting RME Problems
- Information for Troubleshooting CiscoWorks for Switched Internetworking (CWSI) Campus
- Troubleshooting Information for Applications Included in CWSI Campus (VlanDirector, AtmDirector, TrafficDirector, and CiscoView)

### Introduction

CiscoWorks 2000 is a family of management products that combines the best of enterprise router and switch management functionality with easy-to-access deployment of web-based technologies. CiscoWorks 2000 offers a new model of network-management solutions for large, fast-changing enterprise networks. Resource Manager Essentials and CWSI Campus make up the foundation of the CiscoWorks 2000 family. This new generation of management tools leverages the power of the Internet to bring network-accessible knowledge to the management process, and to give users standard web-browser access to management functionality. The CiscoWorks 2000 products integrate switch and router management, provide management application integration via the browser-based Cisco Management Connection, and share common services between functional modules.

Cisco delivered its first Internet-based product when it shipped Resource Manager in 1997, and it integrated several separate applications into a single suite called CiscoWorks for switched Internetworks (CWSI). CiscoWorks 2000 takes these products a step further. Cisco has added management functionality that crosses switches and routers, has dramatically increased web-accessible features, and has integrated existing products onto a common management foundation to leverage a single set of background services.

CWSI Campus offers sophisticated traffic management, ATM management, VLAN management, and device configuration to CiscoWorks 2000. It complements the Resource Manager Essentials automated software upgrade, inventory, and configuration management features. The two applications share some back-end processes, which allows Resource Manager Essentials to run on a standalone basis but requires that CWSI Campus be installed with Resource Manager Essentials as a base to build upon.

The network-management product CiscoWorks Classic was replaced by CiscoWorks 2000 Resource Manager Essentials. For those who want to know the details of migrating from CiscoWorks Classic to Essentials, please refer to the CCO link, at [www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000e/rme\\_ltu/ug\\_appb.htm](http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000e/rme_ltu/ug_appb.htm). CiscoWorks 2000 has four different versions that correspond to four different operating system flavors: CW2000 on NT, CW 2000 on Solaris, CW 2000 on HP-UX, and CW 2000 on AIX. In this chapter, if not specifically pointed out, the troubleshooting information should apply to all flavors of CW 2000.

## Troubleshooting Information for CiscoWorks 2000 Installation and Setup

The following subsections are presented in this section:

- Required Server Software Installation Troubleshooting
- Essentials Troubleshooting Tools
- Logging in After Upgrading
- Checking Files and Directories After Installation
- Understanding Installation Error Messages
- Accessing the Essentials Server
- Setting Up the Browser
- Adding and Importing Device Information
- Gathering Server Information
- Essentials Daemon Manager and CWSI Campus
- Cannot Log in to AniServer
- Testing Connection to the Database

### Required Server Software Installation Troubleshooting

CiscoWorks 2000 for Windows NT version's installation requires Windows NT 4.0 Option Pack components be installed. If you did not install one of the following required components of the Windows NT 4.0 Option Pack during initial installation, you can install them later:

- Internet Service manager
- Microsoft Management Console
- Windows Scripting Host

To install one or more of these components after initial installation, follow these steps:

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- Step 1** Select Start; Program; Windows NT 4.0 Option Pack; Windows NT 4.0 Option Pack setup. The Windows NT 4.0 Option Pack Setup dialog box appears.
  - Step 2** Click Next. A dialog box appears in which you can select Add/Remove or Remove All Installation program options.
  - Step 3** Select Add/Remove. The Select Components dialog box appears.
  - Step 4** Select the missing required components.

- Step 5** Click Next. The Completing Installation dialog box appears.
- Step 6** Click Finish to complete the installation.

## Essentials Troubleshooting Tools

Essentials provides several troubleshooting options that are accessible from the navigation tree. To access these tools, select Admin; Troubleshooting.

1. **Collecting server information**—You can gather troubleshooting information about the status of the server using the Collect Server Info option. To collect server information, follow these steps:

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**Step 1** Select Admin; Troubleshooting; Collect Server Info. The Collect Server Info dialog box appears.

**Step 2** Select a report from the Reports history list.

**Step 3** Click Display. The report displays, showing information such as the product database, the operating system, and disk utilization statistics.

**Step 4** To create a new report, click Create. The new report appears in the Reports history list.

**Step 5** **Note:** It might take up to 5 minutes to collect the information.

**Step 6** To delete reports, select them from the Reports history list, and then click Delete.

2. **Viewing process failures**—You can check for potential failures of the back-end server processes using the Process Failures option. The Process Failures table provides you with only two possible states for the failure.

3. **Failed to run**—The process exited or sent a failed message.

4. **Administrator has shut down the server**—The administrator or another program has shut down the process.

To view process failures, follow these steps:

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**Step 1** Select Admin; Troubleshooting; Process Failures. Table 24-1 describes the columns that the Process Failures table displays.

**Table 24-1** Viewing Process Failures

Column	Description
Process Name	Name of the process.
State	Process status: “Failed to run” or “Administrator has shut down this server.”
Pid	Process ID. A unique key by which the operating system identifies all running programs.
RC	Return code. “0” indicates normal program operation. Any other number typically represents an error. Refer to the error log.
Signo	Signal number. “0” indicates normal program operation. Any other number is the last signal delivered to the program before it terminated.
Start Time	Time and date that the process was started.
Stop Time	Time and date that the process was stopped.

**Table 24-1 Viewing Process Failures (continued)**

Column	Description
Core	“Not applicable” means that the program is running normally. “CORE FILE CREATED” means that the program is not running normally and that the operating system has created a file called a core file. The core file contains important data about the process failures.
Information	Reason for the failure. “Not applicable” means that the program is not running normally.

- Step 2** Click any process name to see details. The Process Details table appears. Click Back to return to the Process Failures table.
- Step 3** Click any process state to see the System Log. The System Log appears. Click Back to return to the Process Failures table.
- Step 4** Click Update at any time to refresh the fields.
- 5. Collecting self-test information**—You can rerun self-tests and generate a report with the results using the SelfTest option. To collect self-test information, follow these steps:

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- Step 1** Select Admin Troubleshooting SelfTest. The Server Selftest Info dialog box appears.
- Step 2** Click Run Tests to rerun self-tests and generate a report. The tests are run and a report appears in the Reports history list.
- Step 3** **Note:** It might take up to 5 minutes to run the tests.
- Step 4** Select the report from the Reports history list.
- Step 5** Click Display. The report is displayed, showing whether the tests passed or failed.
- Step 6** You can delete reports by selecting them from the Reports history list and then clicking Delete.

## Logging in After Upgrading

After upgrading from Cisco Resource Manager 1.1 to Essentials 2.1, or from Essentials 2.0 to Essentials 2.1, or from Essential 2.1 to Essential 2.2, you might need to clear your browser cache to log into Essentials.

If the Login Manager dialog box on the Essentials desktop does not appear correctly when you attempt to log in for the first time after upgrading, clear your browser cache as follows, and then re-enter the Essentials server URL in your browser.

For Microsoft Internet Explorer, follow these steps:

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- Step 1** Select View Internet Options. The Internet Options dialog box appears.
- Step 2** Select the General tab.
- Step 3** Click Delete Files.

For Netscape Navigator, follow these steps:

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- Step 1** Select Edit Preferences. The Preferences dialog box appears.
- Step 2** Select Advanced Cache.

- Step 3** Click Clear Memory Cache, and then click OK in the Memory Cache dialog box.
- Step 4** Click Clear Disk Cache, and then click OK in the Disk Cache dialog box.

## Checking Files and Directories After Installation

If you encountered problems while installing Essentials, make sure that the following directories are installed in the right directories.

For CW 2000 installation on NT, the following directories should be installed in the C:\Program Files\CSCOpX directory (or the directory that you specified for the installation):

- bin
- cgi-bin (programs run by the web server)
- collect
- conf (configuration files)
- etc (Essentials system files)
- example (sample import files)
- htdocs (web server files)
- lib
- man
- objects (Essentials subsystems)
- selftest
- www
- upgrade (MIB upgrades)
- setup (setup information)
- shared (system files)
- temp (temporary files)
- tftpboot (files exported by tftpboot)
- dbupgrade
- files
- log (log files)
- proxy (temporary files)

The Essentials installation tool installed the following directories in the C:\Program Files\CSCOpX\objects directory (or the directory that you specified for the installation):

- availability (availability)
- cmf (Common Management Framework)
- config (configuration management)
- data (syslog analysis configuration files)
- db (Essentials database)
- inventory (inventory)
- mngconnection (Management Connection)

- perl5 (Essentials perl interpreter and libraries)
- proxy (proxy server information)
- share (shared program files)
- swim (Software Management)
- sysloga (syslog analysis)
- web (web server process and utilities)

For CW 2000 installation on Solaris, HPUX and AIX, make sure that the following directories have been installed in the /opt/CSCOpX/, /opt/CSCOpX/, and /usr/CSCOpX/ directories, respectively:

- bin
- cgi-bin (programs run by the web server)
- collect
- conf (configuration files)
- etc (Essentials system files)
- example (sample import files)
- htdocs (web server files)
- lib
- man
- objects (Essentials subsystems)
- selftest
- www

Also, the Essentials installation tool installed the following directories in the /opt/CSCOpX/objects, /opt/CSCOpX/objects, and /usr/CSCOpX/objects directories, respectively on Solaris, HPUX, and AIX:

- availability (availability)
- cmf (Common Management Framework)
- config (configuration management)
- data (syslog analysis configuration files)
- db (Essentials database)
- dmgt (daemon management)
- inventory (inventory)
- mngconnect (Management Connection)
- perl (Essentials perl interpreter and libraries)
- share (shared program files)
- swim (Software Management)
- tcltk (web administration)
- util (utility programs and scripts)
- web (web server process and utilities)

**Note**

There are no config (configuration management) or util (utility programs and scripts) directories on AIX.

In addition, the following files should have been added to the /etc directory on Solaris:

- rc2.d/K90dmgtd
- init.d/dmgtd
- rc3.d/S10dmgtd
- rc.config.d/CiscoRMCtrl

On HPUX, the following files should be added:

- /sbin/rc2.d/K90dmgtd
- /sbin/init.d/dmgtd
- /sbin/rc3.d/S10dmgtd
- /eetc/rc.config.d/CiscoRMCtrl

On AIX, the file rc.dmgtd should be added in the /etc directory.

## Understanding Installation Error Messages

After verifying that the correct files are installed, check the c:\rme\_in001.log file (or the log file with the highest number, such as rme\_in003.log) for installation errors on NT, or check the /var/tmp/ciscoinstall.log file for installation errors on Solaris, HPUX, and AIX. You might find the following types of messages:

- Information messages, which give you important details
- Warning messages, which indicate that something might be wrong with a particular process, but the process will complete
- Error messages, which indicate that a particular process could not complete

Table 24-2 shows error messages that might occur during installation on NT and describes the reasons for the errors.

**Table 24-2 Installation Error Messages on NT**

Error Message	Reason for Error	User Action
Administrator privileges are needed to install or uninstall this package. Please log in as administrator and try again.	The user is not logged on to Windows NT with administrator privileges.	Log on to Windows NT with administrator privileges, and try installing again.
Decompression failed on <file>. The error was for <error code per CompressGet>.	If Essentials was downloaded, a transmission error might have occurred. Otherwise, the installation media is damaged.	Retry the download. If you install from product CD, check the media to make sure that it's not damaged.

Table 24-2 Installation Error Messages on NT (continued)

Error Message	Reason for Error	User Action
General file transmission error. Please check your target location and try again. Error number: <error code>.	If Essentials was downloaded, a transmission error might have occurred.	Retry the download.
Unable to write <infoFile> or Unable to create <infoFile>.	A file write operation failed.	Run the file system checking utility, and then repeat the installation.
Cannot stop service <servicename>.	The Essentials installation (or reinstallation) tried to stop the service <servicename>, but the service did not stop.	Select Control Panel; Services, and try to stop the service <servicename> manually. Then proceed with (un)installing.
UseDLL failed for <dll>.	<dll> is supposed to be available at any time for any process, but NT failed to load it.	Check permissions on Windows NT System 32. If the <dll> is secure.dll, check the product installation media for errors or Reinstall Windows NT.
<function> failed: DLL function not found.	<dll> is supposed to be available at any time for any process, but NT failed to load it.	Check permissions on Windows NT System 32. If the <dll> is secure.dll, check the product installation media for errors or Reinstall Windows NT.
OpenFile failed: <pathname>.	A file open operation failed.	Run the file system checking utility. Then repeat the installation.
ProtectFile failed: <file>: error. WWW admin security may be incomplete.	Setting the file permissions failed because the user might not be allowed to change them.	Log in as administrator. <b>Note:</b> If you are installing on a FAT file system, Essentials cannot provide file security.
Installing in root directory is not allowed. Please choose nonroot directory.	You attempted to install Essentials in the root directory of a drive (for example, c:\ or d:\), which is not supported.	Choose a nonroot directory in which to install Essentials.



Table 24-2 Installation Error Messages on NT (continued)

Error Message	Reason for Error	User Action
Resource Manager Essentials can be installed only on NT Workstation or NT Server. It is not supported on PDC/BDC.	The installation program determined one of the following: Windows NT is not installed on the system. The system is configured as a primary domain controller (PDC) or a backup domain controller (BDC).	Install Essentials on a Windows NT 4.0 Workstation or Windows NT 4.0 Server system that is not configured as a PDC or a BDC.
You have less than 1 M free space on <drive name>. Please free up some space and try again.	There is insufficient drive space for temporary installation files.	Make more drive space available, and then rerun the installation program.
This program requires to run on Window NT.	You attempted to install on a system that does not have Windows NT 4.0 installed.	Install Essentials on a Windows NT 4.0 Workstation or Windows NT 4.0 Server system that is not configured as a PDC or a BDC.
Unable to determine the type of operating system. Resource Manager Essentials can be installed only on NT Workstation or NT Server.	The installation program could not determine which operating system is running on the system.	Install Essentials on a Windows NT 4.0 Workstation or Windows NT 4.0 Server system that is not configured as a PDC or a BDC.
Physical memory is <...>M Paging File Size is: <...>M(initial), <...>M(max). It is recommended that initial paging file size is bigger than physical memory and that max paging file size is at least twice bigger than physical memory.	The paging file size is smaller than recommended.	Finish the installation, and then increase the paging file size.
The Resource Manager Essentials installation found the IIS/PWS v2/v3. Internet Information Server 4.0 is required.	IIS or PWS version 2 or 3 is installed on the system, but version 4.0 is required.	Install IIS or PWS 4.0 and the other required Microsoft software. Then rerun the installation program. Refer to the Essentials installation manual for more information.

Table 24-2 Installation Error Messages on NT (continued)

Error Message	Reason for Error	User Action
The Resource Manager Essentials installation could not find Windows Scripting Host. Windows Scripting Host is required for IIS 4.0.	The Windows scripting host is not installed on the system.	Install the Windows Scripting Host (and any other required components of the Windows NT 4.0 Option Pack). Then rerun the installation program.
Downgrade to FCS version is not supported. If you wish to revert to FCS, back up your data, then uninstall the current version and do a new install of this version. Exiting.	The installation program detected that some Essentials patches or upgrades are installed. In this case, you cannot downgrade to the FCS version of the product using the installation program.	To revert back to the FCS version of the product, follow these steps: <ol style="list-style-type: none"> <li>1. Back up your Essentials data files.</li> <li>2. Uninstall Essentials.</li> <li>3. Install the FCS version of Essentials again.</li> <li>4. Restore the backed-up data.</li> </ol>
There is not enough space available on the disk <drive>: This drive has <...> bytes in a cluster. Total required <...> clusters (<...> bytes), only <...> clusters (<...> bytes) available. Please free up some space and rerun installation.	There is insufficient disk space available on drive <drive> to install the product.	Create additional free space on the drive, or install the product on a different drive.
INFO: You must now install Campus CWSI 2.3 to continue using CWSI.	No error is indicated; this is information only. This appears only if a previous version of CWSI is installed.	If you want to use CWSI Campus, you must install it after installing Essentials.
You must now install CWSI 2.3 if you want to use the Campus product. CWSI 2.1 will not work correctly with Essentials 2.1.	No error is indicated; this is information only. This appears only if a previous version of CWSI is installed.	If you want to use CWSI Campus, you must install it after installing Essentials.
You have CWSI 2.1 installed and will need to upgrade to CWSI 2.3 when Resource Manager Essentials install completes to continue to use CWSI.	No error is indicated; this is information only. This appears only if a previous version of CWSI is installed.	If you have CWSI 2.1 installed, you need to upgrade to CWSI Campus 2.3 after installing Essentials to continue to use the CWSI/Campus product.

**Table 24-2 Installation Error Messages on NT (continued)**

Error Message	Reason for Error	User Action
Cannot determine the local Administrators group.	The installation program cannot find one of the built-in Windows NT user groups. This prohibits the setup of Essentials security.	Check the Windows NT operating system. Reinstall Windows NT, if necessary, and then rerun the Essentials installation program.
Cannot determine the local Everyone group.	The installation program cannot find one of the built-in Windows NT user groups. This prohibits the setup of Essentials security.	Check the Windows NT operating system. Reinstall Windows NT, if necessary, and then rerun the Essentials installation program.
Failed to set file permissions.	The installation program is incapable of setting file permissions. These are most likely caused by the following:  The account that you used to log into the system has insufficient permissions.  The drive on which you are installing the product has a FAT file system.	Fix the cause of the permission setting problem, and then rerun the installation program.
Unable to uninstall Resource Manager Essentials because the following components are shared: CWSI 2.x. You need to uninstall these dependent applications then run the Resource Manager Essentials uninstallation again.	You cannot uninstall Essentials while CWSI or CWSI Campus is installed.	Uninstall CWSI or CWSI Campus from the system. Then you can uninstall Essentials.
FSSupportsACLs failed: <OS error message>.	You attempted to install on a non-NTFS file system. This prohibits Essentials from using file-level security.	Install Essentials on an NTFS file system if you want the file-level security enabled.
<...> is already running! Wait for it to finish and press the OK button below.	One of the installation subtasks is still running.	Wait for the installation subtask to finish running, and then click the OK button to proceed.

Table 24-2 Installation Error Messages on NT (continued)

Error Message	Reason for Error	User Action
Unable to create/open log file.	The installation program was incapable of creating or opening the installation log file (located in the root directory of the drive on which you are installing, named rme_inxxx.log, where xxx is a sequential number start from 001).	Determine why the file could not be created or opened, fix the problem, and then rerun the installation program. Common causes of this problem include lack of disk space or write protection on the file.
Web Server Configuration Failed, see installation log.	The configuration of the web server failed.	Check the installation log file (rme_inxxx.log,) for more information.  Try uninstalling the Windows NT 4.0 Option Pack, and then reinstall it and rerun the Essentials installation program.
Error creating user bin <... more info here>. See the troubleshooting section in user manual.	The installation program could not create the user account bin.	Fix the problem that caused the failure to create the user account bin, and then rerun the installation program.
Setup detected a previously installed version of CiscoWorks... Please uninstall the previous version and restart Setup.	The TrafficDirector application was installed after a CWSI/CWSI Campus installation.	Install the TrafficDirector application as part of the CWSI Campus installation.
INFO: ComponentError returned the following data transfer error... Setup will now abort. Media Name:... Component:... File Group:... File:... Error Number...	Some TrafficDirector applications are still running, so the files still in use cannot be installed or upgraded.	Ensure that all the TrafficDirector application windows and applications are closed, and ensure that all executables—including database processes—are stopped.

Table 24-3 shows error messages that might occur during installation on UNIX and describes the reasons for the errors.

**Table 24-3 Installation Error Messages on Solaris, HP-UX, and AIX**

Error Message	Reason for Error	User Action
<sub-package> did not install.  (This message doesn't apply to AIX platform installation.)	The specified package did not install correctly.	Verify that you have enough disk space, and reinstall Essentials as explained in the <i>Installing Essentials</i> manual on CCO.
pkgchk <pkg_name> failed.  (This message doesn't apply to AIX platform installation.)	The UNIX package validation tool (pkgchk) found a problem with the specified directory.	Reinstall Essentials.
WARNING: RAM in system is \$RAM. \$MIN_RAM recommended.	Your system has less than the recommended memory.	Add memory to your system.
WARNING: SWAP in system is less than 2x RAM.	Your system has less than the recommended swap space, which is two times the RAM.	Increase swap space.
ERROR: You must be root to run Unix install. Exiting.	You did not log in as root. The installation is terminated.	Log in as root and enter the correct root password.
Insufficient disk space in /var/adm.	/var/adm must have at least 5 MB of available disk space.	Make at least 5 MB of disk space available on /var/adm, and then run the installation program again.
Insufficient disk space in /var/tmp.	/var/tmp must have at least 1 MB of available disk space.	Make at least 1 MB of disk space available on /var/tmp, and then run the installation program again.
Insufficient disk space on any local volume.	The installation program requires a local volume with sufficient disk space on which to install the product.	Make at least 250 MB of disk space available on a local disk volume.

**Table 24-3 Installation Error Messages on Solaris, HPUX, and AIX (continued)**

Error Message	Reason for Error	User Action
<p>ERROR: The patch bos.libpthreads4.3.0.2 has to be installed for the product to work correctly. Install bos.libpthreads patch 4.3.0.2 and retry installation. Exiting.</p> <p>(This applies to the AIX platform only.)</p>	<p>The patch bos.libpthreads 4.3.0.2, which is required on AIX 4.3 systems, is not installed on the system.</p>	<p>Install the patch bos.libpthreads 4.3.0.2, and then rerun the installation program. Refer to the <i>Installing Essentials</i> manual on CCO for more information.</p>
<p>WARNING: The patch x1C.rte3.1.4.8 has to be installed for the product to work correctly.</p> <p>(This applies to the AIX platform only.)</p>	<p>The patch x1C.rte3.1.4.8 is not installed. This might cause Essentials to work incorrectly.</p>	<p>Complete the installation program, and then install the patch x1C.rte3.1.4.8. Refer to the <i>Installing Essentials</i> manual on CCO for more information.</p>

## Accessing the Essentials Server

The Essentials server uses the port 1741. Make sure that you enter the correct URL when accessing the server:

```
http://server_name:1741
```

Here, *server\_name* is the name of the Essentials server.

If you still cannot access the server, enter the following command at a DOS prompt to make sure that your server is running:

```
ping server_name
```

If you get a message that the server is “alive” and get a proxy error when you try to connect to the server, make sure that the proxy is set up correctly. If your server is configured to use a proxy server outside the firewall (specified in Netscape Navigator under Options; Network Preferences; Proxies), you will get proxy errors if you have incorrectly configured the proxy to ignore requests to a certain machine, set of machines, or domain.

Your proxy is set up incorrectly if you encounter any of the following:

- You receive an error message that you are using a proxy outside the firewall.
- The proxy server recognizes www-int as an internal server, so it does not proxy requests to that server.
- You set up a new internal server, www-nms, but when you make a request to the proxy server, it does not recognize www-nms as an internal server and proxies the request.
- The proxy server outside the firewall tries to request data from a server inside the firewall, and the request is blocked.
- You get a “Connection Refused” error from the proxy server.

## Setting Up the Browser

If the Essentials buttons do not work, you have not enabled Java and JavaScript. Enable Java and JavaScript as described in the *Installing Essentials* manual on CCO, in the “Configuring Client Systems” section. Ensure that your cache is *not* set to zero. If you experience browser problems, increase your cache settings, as explained in the same section in the *Installing Essentials* manual on CCO.

Do not resize the browser window while the desktop or main page is still loading. This can cause a Java error.

## Adding and Importing Device Information

This subsection describes some problems that might occur when you attempt to add or import device information.

1. **Adding device information**—If you added a device using Admin; Inventory; Add Devices, and the Add/Import Status Summary dialog box shows that the device status has not changed from *pending* within 15 minutes, check the status of all processes to ensure that they are running normally, as explained in the following steps:

- 
- Step 1** To view the latest device status information, in the Add/Import Status Summary dialog box (Admin; Inventory; Import Status), click Update.
- Step 2** To determine whether the DIServer process is running, select Admin; System Admin; Process Status. (The DIServer is the process responsible for validating devices and changing their status from pending.)

Even if the DIServer process shows the state “Running Normally,” it might be in an error state. You need to stop and restart it by following these steps:

To stop the DIServer process, select Admin; System Admin; Stop Process. The Stop Process dialog box appears. Click the Process radio button.

In the Process Name field, select DIServer and then click Finish.

To restart the DIServer process, follow these steps:

From the System Admin folder, click Start Processes. The Start Process dialog box appears.

Click the Process radio button.

In the Process Name field, select DIServer, and then click Finish.

- Step 3** Return to the Add/Import Status Summary screen by selecting Inventory; Import Status, and then click Update. The device status should change to *managed* within a couple of minutes.
2. **Importing Device Information**—If you have difficulty importing device information, try the following solutions:
    - Increase the SNMP timeout setting. Refer to the online help for more information.
    - Verify that you have correct read community strings entered for the devices.

## Gathering Server Information

Essentials contains a utility that can help you troubleshoot server problems. You can obtain information about the Essentials server in one of two ways:

Select Admin; Troubleshooting; Collect Server Info. The Collect Server Information dialog box appears. Click Display to collect information about the server. After the information has been collected, the dialog box tells you how to view the server information in your web browser.

From the server, enter the following command from the command window:

```
collect.info filename.html
```

Here, *filename* is a filename of your choice.

If collect.info is not recognized as a command, add the following path name to your PATH system variable:

**On NT:**        **C:\Program Files\CSCOpX\cgi-bin\admin\perl**

**On Solaris and HP-UX:**    **/opt/CSCOpX/bin**

**On AIX:**        **/usr/CSCOpX/bin**

On UNIX machines, the server information will be collected into the /var/tmp/px\_status.info file. Send this file to Cisco via e-mail if directed to do so by your technical support representative.

## Essentials Daemon Manager and CWSI Campus

CWSI Campus relies on the Essentials Daemon Manager. Therefore, the Essentials Daemon Manager must be running for CWSI Campus to run. If the Essentials Daemon Manager has stalled, you must stop and restart the Essentials Daemon Manager.

On Windows NT, to stop the Essentials Daemon Manager from the GUI, follow these steps:

- 
- Step 1** From the Windows NT menu, select Start; Settings; Control Panels.
  - Step 2** Double-click Services.
  - Step 3** In the dialog box, select Essentials Daemon Manager.
  - Step 4** Click Stop.

To restart the Essentials Daemon Manager from the GUI, follow these steps:

- 
- Step 1** From the Windows NT menu, select Start; Settings; Control Panels.
  - Step 2** Double-click Services.
  - Step 3** In the dialog box, select Essentials Daemon Manager.
  - Step 4** Click Start.

To stop and start the Essentials Daemon Manager from the command-line interface, follow these steps:

- 
- Step 1** Log in as administrator.
  - Step 2** Open a command prompt or shell window.



**Step 3** Stop the server by entering the following command at the prompt:

```
net stop crmdmgt
```

Start the server by entering the following command at the prompt:

**Step 4** net start crmdmgt

On a Solaris system, to stop and restart the Essentials Daemon Manager, follow these steps:

---

**Step 1** Log in as root.

**Step 2** Open a command prompt or shell window.

**Step 3** Stop the server by entering the following command at the prompt:

```
# /etc/init.d/dmgt stop
```

**Step 4** Start the server by entering the following command at the prompt:

```
# /etc/init.d/dmgt start
```

## Cannot Log in to AniServer

If you have just restarted your computer and cannot log in to <Hostname>AniServer, the ANI server might not be ready to receive messages. Wait a few minutes, and then try to log in again.

If you still cannot log in, follow these steps:

---

**Step 1** Open a command prompt or shell window.

**Step 2** Check to see if the daemons are running using the command-line utility pdshow in C:\Program Files\CSCOpX\bin (on Windows NT), or /opt/CSCOpX/bin (on Solaris).

```
pdshow RmeOrb AniServer
```

This will show whether OSAgent and AniServer are running, and whether AniServer is connected to the database.

**Step 3** Run osfind.

Set the OSAGENT\_PORT environment variable to 42342. This is the port used by OSAgent in Essentials.

Set OSAGENT\_PORT=42342 (on Windows NT)

```
# setenv OSAGENT_PORT 42342 (on Solaris)
```

Run osfind. This verifies whether AniServer has registered with the OSAgent. This tool is located in C:\Program Files\CSCOpX\lib\visigenics\bin (on Windows NT), or /opt/CSCOpX/lib/visigenics/bin (on Solaris).

If <Hostname>AniServer is registered with the OSAgent, verify that the name of <Hostname>AniServer in the login box is the same name as the name registered with OsAgent.

If <Hostname>AniServer is registered, retry to log in to CWSI Campus.

If <Hostname>AniServer is not registered, you must stop and restart CWSI Campus.

**Step 4** Enter the following command to stop the CWSI Campus processes.

```
stopcwsiserver
```

When the prompt returns, all daemons have been stopped.

**Step 5** Enter the following command to start the CWSI Campus processes.

```
Startcwsiserver
```

Wait until the prompt returns.

**Step 6** Run `osfind`.

If <Hostname>AniServer is registered, retry to log in to CWSI Campus.

If <Hostname>AniServer is not registered, continue to next step.

**Step 7** Check to see if the <Hostname>AniServer was properly registered with the daemon manager during installation using the utility `pdreg`.

```
pdreg -1 AniServer
```

This verifies whether AniServer is registered with Essentials Daemon Manager.

If AniServer is registered with Essentials Daemon Manager but is not running, check the `ani.log` to see how far the initialization has proceeded.

If AniServer is not registered, the following error message appears:

```
ERROR AniServer is not a registered server name.
```

If AniServer is not registered with Essentials Daemon Manager, it will not be capable of initializing itself. Contact your Cisco TAC representative for additional assistance.

## Testing Connection to the Database

You can run a utility to determine if you can connect to the CWSI Campus database. To run the utility, follow these steps:

**Step 1** Locate the `testdbconn` utility in the <CWSIROOT>\bin directory, where <CWSIROOT> is the directory in which you installed CWSI Campus.

**Step 2** Run the `testdbconn` utility.

If the program finishes and the prompt returns, the database connection is fine.

## Methods for Evaluating and Troubleshooting RME Problems

Essentials provides you with methods for evaluating and troubleshooting problems.

The following sections are presented in this section:

- Error Message Format
- Process Status Features
- Troubleshooting a Process Problem

## Error Message Format

Essentials displays two types of error messages:

- Interface error messages

- Back-end error messages stored in the syslog

Interface error messages are displayed in dialog boxes with descriptions of the probable causes and recommended corrective actions, if any.

Three types of interface error messages are available:

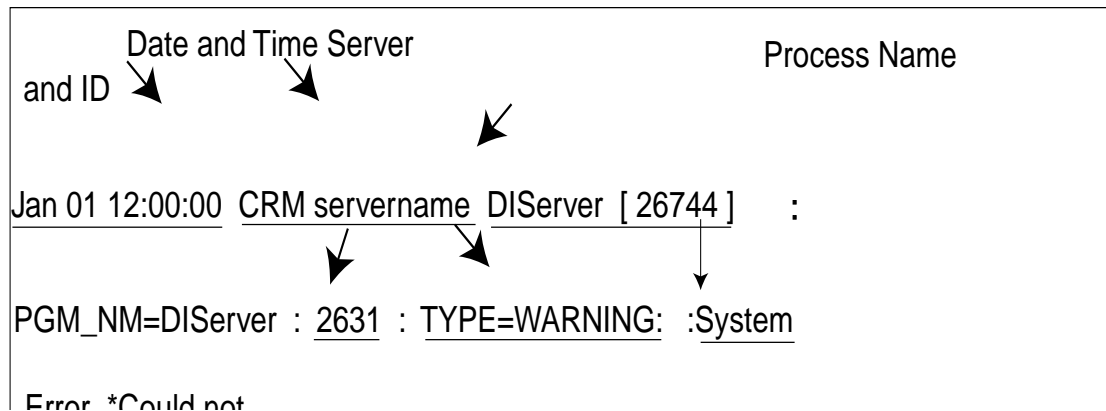
- **USER**—Indicates a user error or invalid input
- **SYSTEM**—Indicates a system failure
- **INTERNAL**—Indicates a product code issue

Some interface error messages include a Details button. Click Details for additional information and recommended corrective action. An informational dialog box appears.

Back-end error messages result from problems that occur in processes running on the Essentials server. Back-end error messages are stored in the syslog.

Refer to the appropriate Essentials installation guide for the location of the error message logs. Figure 24-1 shows the syslog error message format.

**Figure 24-1 Syslog Error Message Format**



## Process Status Features

Two interfaces are available for viewing and troubleshooting process problems:

- Essentials desktop (navigation tree)
- Command-line interface (CLI)

Use the Process Status, Start Process, and Stop Process System Admin options to view process status and troubleshoot process problems. Use the CLI for processes that cannot be monitored through the desktop interface (for example, syslogd).

Table 24-4 shows the process features available in the desktop interface and their command-line equivalents.

**Table 24-4 Process Features**

Essentials Desktop	Command-line Equivalents
Process Status	pdshow

*Table 24-4 Process Features*

Essentials Desktop	Command-line Equivalents
Start Process	pdexec
Stop Process	pdterm

For a complete description of the desktop interface processes, refer to the RME online help.

Several events can cause a process to fail. For example, the database engine might fail for one of the following reasons:

- On UNIX systems, the database uses a small amount of space in the /tmp file system. If this space fills up, the database can no longer accept connections from client code and fails.
- The file system containing the database file is full.
- If an application process fails, examine your system to see whether either of these conditions or any others has occurred, and attempt to correct them.

## Troubleshooting a Process Problem

The Process Failures table gives you information about potential process failures. It tells you that the process has failed or that an administrator has shut down the process.

If a process behaves in an unexpected way and you want to know the possible cause, to troubleshoot a process, perform the following steps:

- 
- Step 1 Select Admin; Troubleshooting; Process Failures.
  - Step 2 Click on the process name to display the Process Details table.
  - Step 3 Click Back to return to the Process Failures table.
  - Step 4 Click any process state to display the System Log.
  - Step 5 Click Back to return to the Process Failures table.
  - Step 6 Click Update at any time to refresh the fields.

## Starting a Process

**Scenario:** You check process status and notice that the DbServer process in the Process Status table shows a state of “Failed to run.” You attempt to restart the process.

For the desktop interface, to attempt a process restart using the navigation tree, perform the following steps:

- 
- Step 1 Select Admin; System Admin; Start Process.  
The Start Process dialog box appears.
  - Step 2 Click Process, select DbServer in the Process Name drop-down list box, and then click Finish.  
The Process Status table appears. If the status now reads “Running normally,” you have solved the problem.

If the process is still not running normally, you may need collect more server and process information to further troubleshooting.

For the command-line interface, to restart a process using the CLI, perform the following steps:

- 
- Step 1** Enter **pdexec DbServer**.
- Step 2** Enter **pdshow DbServer** again to see whether the process is operating properly.

If the process is operating properly, the following message appears:

```
Process= DbServer
State = Running normally
      Pid    = 21473
      RC     = 0
      Signo  = 0
      Start  = 19:16:15 06/02/1999
      Stop   = Not applicable
      Core   = Not applicable
      Info   = Data server (dbeng50) invoked
```

If the process is still not running normally, check the error log for further troubleshooting.

## Stopping a Process

**Scenario:** You want to back up all data that you have stored on your hard drive, so you shut down the DbServer process.

On the desktop interface, to stop the DbServer process using the navigation tree, perform the following steps:

- 
- Step 1** Select Admin; System Admin; Stop Process.
- Step 2** The Stop Process dialog box appears.
- Step 3** Click the Process radio button.
- Step 4** Select DbServer from the Process Name drop-down list box, and then click Finish.

The process stops, and the Process Status table displays the message “Administrator has shut down this server.”

On the command-line interface, to stop the DbServer process using the CLI, perform the following steps:

- 
- Step 1** Enter **pdterm DbServer**.
- Step 2** Enter **pdshow DbServer**.

The following status message appears, showing that the process has been stopped.

```
Process= DbServer
State = Administrator has shut down this server
      Pid    = 0
      RC     = 0
      Signo  = 0
      Start  = 19:16:15 06/02/97
      Stop   = 11:27:05 06/03/97
      Core   = Not applicable
      Info   = Not applicable
```

## Troubleshooting Suggestions

Table 24-5 lists troubleshooting suggestions. If the action items suggested do not resolve the error, check the release notes supporting your platform for possible workarounds.

**Table 24-5 Troubleshooting Suggestions**

Error Message	Possible Reasons	Actions
Admin: unable to log on to Essentials (Windows NT only)	An incompatible Microsoft Internet Information Server (IIS) is installed.	Check installation instructions, unload old Microsoft IIS, and then load the correct Microsoft IIS, if necessary.
Authorization required. Please log in with your username and password.	An incompatible browser is causing cookie failure (unable to retrieve cookie).	Refer to the installation documentation for supported version of Internet Explorer/Netscape Navigator software.
Database: inaccessible.  This can appear by Process status showing one of the following:  ICServer not running  DIServer not running  AvLoader not running  DbMonitor not running  DbServer not running  EssentialsOSG not running  Alternatively, the error message “failed to get complete list of domains” could appear on an Add Device operation.	Server cannot connect to the database, which is corrupt or inaccessible.	<ol style="list-style-type: none"> <li>1. Log in to Essentials as admin.</li> <li>2. Select Admin; Troubleshooting Process; Failures to get a list of Essentials backend processes that have failed.</li> <li>3. Select Admin; Troubleshooting; Self Test.</li> <li>4. Click Create to create a report.</li> <li>5. Click Display to display the report.</li> <li>6. Select Admin; Troubleshooting; Collect Server Info.</li> <li>7. Click the Product Database Status link to get detailed database status.</li> </ol>
Database: ODBC error with Essentials (Windows NT only)	The ODBC resource .dll and the ODBC driver manager are different versions.	Install ODBC from Windows NT CD (selecting SQL server).

*Table 24-5 Troubleshooting Suggestions (continued)*

Error Message	Possible Reasons	Actions
Device Configuration: archive cannot retrieve the configuration module for Catalyst devices.	Incorrect password was given when adding or importing the device.	<p>Enter the correct Telnet and enable passwords for the Catalyst devices in the Essentials database.</p> <p>The configuration archive uses Telnet to gather module configurations for Catalyst devices.</p> <p>For the configuration archive to successfully gather the ATM and RSM module configurations, these modules must have the same Telnet passwords as that for the supervisors of the Catalyst 5000 Family of devices.</p> <p>See Essentials online help for more information on entering passwords.</p>
Device Configuration: archive cannot retrieve the running configuration for a device.	Incorrect read and write community strings were given when adding or importing the device.	<p>Enter the correct read and write community strings in the Essentials database.</p> <p>Change the order of the protocols used to retrieve the configuration. (The configuration archive downloads configurations from devices using three different transport protocols—TFTP, Telnet, and RCP, normally in that order).</p> <p>See Essentials online help for more information on setting the transport protocol order used for gathering configurations.</p>

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Device Configuration: archive cannot retrieve the startup configuration for a device.	Incorrect password was given when adding or importing the device.	<p>Enter the correct Telnet and enable passwords for the device in the Essentials database.</p> <p>If the device is configured for TACACS authentication, add the TACACS username and password (not the Telnet password) in the Essentials database when you import the device.</p> <p>If the device is configured for local user authentication, add the local username and password in the Essentials database.</p> <p>If the device is configured for Telnet authentication, ensure that you use the Telnet password, enable password, enable secret (if configured), and local username and password (if configured). Do not enter either the local or TACACS username and password.</p> <p>See Essentials online help for more information on entering passwords and TACACS, local, and RCP information.</p>
Device Configuration: "DNS hostname mismatch. <i>ip_address</i> unknown to DNS."	The device does not have the DNS server set up to resolve the host name.	Ensure that the DNS server recognizes the device hostname. Alternatively, specify the IP address instead of the hostname.
Device Configuration: server runtime error when running Tasks; Device Configuration or Admin; Device Configuration tasks.	CMLogger is not running.	<ol style="list-style-type: none"> <li>1. Log in to Essentials as admin.</li> <li>2. Select Admin; System Admin; Start Process.</li> <li>3. Start the System. If the configuration tasks still fail, select Admin; Troubleshooting; Process Failures to get a list of Essentials back-end processes that have failed.</li> <li>4. Select Admin; Troubleshooting; Self Test.</li> <li>5. Click Create to create a report.</li> <li>6. Click Display to display the report.</li> <li>7. Select Admin; Troubleshooting; Collect Server Info.</li> <li>8. Click the Product Database Status link to get detailed database status.</li> </ol>



Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Device Configuration: SNMP timeout prevents TFTP from retrieving the running configuration for a device.	SNMP did not allow sufficient time for the operation.	Increase the SNMP timeout by configuring SNMP retries and timeouts.  See Essentials online help for more information on configuring system-wide SNMP timeouts and retries.
Display: applet cannot start: class browserServer not found (Solaris only).	The server name is not in the <i>httpd.conf</i> file.	Add the server name in the <i>httpd.conf</i> file.
Display: only right side of Essentials Window displayed.	Browser software is incompatible.	Refer to the installation documentation for supported Internet Explorer/Netscape Navigator software.
	Desktop is not registered in DNS.	Register the desktop in DNS.
Inventory: device import from local database fails (Solaris only).	User bin is not a member of the CiscoWorks group.	Add group membership before starting Essentials.
	Name resolution is incorrect.	Correct the name resolution. If that is not possible, then remote import rules will be applied; add <i>.rhosts</i> to the <i>bin</i> home directory.
Inventory: device import fails from remote NMS.	Essentials and the remote NMS reside in different DNS domains.	Set up Essentials and remote NMS stations in the same DNS domains.

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Inventory: device serial or router chassis numbers differ from those shown on outside labels.	Hardware reports get data from the user-defined optional serial number field when the device or router is added to the Essentials (or via Change Device Attributes), not from the SNMP variable chassis serial number. The manually changed serial number takes precedence over the external number.	No action is required, although you can manually change the serial number back to match the external number.
Inventory: device stays in a pending state.	The database is corrupt.	Stop Essentials. Install a backup database, if available; otherwise, install the basic database, <i>px.db</i> , over the corrupt database.
	DIServer is not running.	Check the process status. If DIServer is not running, restart it.
	A broadcast address has been imported and is being used for an SNMP write.	Suspend the device. Run the address validation tool on the device (Tools; Connectivity Tools; Validate Device Addresses) to ensure that a broadcast or network address is not being used.
Inventory: devices not importing.	An access list has been applied to the SNMP-server community configuration.	Add <b>permit</b> statements to the access lists on all routers.
	An SNMP timeout has occurred.	Increase SNMP slow timeout and retry values.
	Reverse DNS lookup failure occurred.	Add the device entry to the local hosts file.
	The device name is not configured in the DNS or <i>localhost</i> file.	Add the device entry to the DNS or local hosts file.
Inventory: cannot add device to database.	HP OpenView/SNMP has an old version of <i>wsnmp.dll</i> files.	Remove or rename HP OpenView version <i>wsnmp.dll</i> files.

**Table 24-5 Troubleshooting Suggestions (continued)**

Error Message	Possible Reasons	Actions
Performance: Essentials running slow when importing device (Windows NT only).	Software is incompatible.	Refer to the installation documentation. Verify that correct SP and Microsoft IIS have been loaded. If necessary, unload and reload Essentials.
Printing: cannot print graphs in Essentials.	A browser print restriction has occurred.	To print an Essentials window, use the Print Screen or Capture Screen function on your machine.
Reports: browser hangs when running reports.	Browser software is incompatible.	Refer to installation documentation for supported browser software.
Software Management: approver cannot change scheduled time for Distribute Images jobs using Software Management.	Maker-checker is enforced on Distribute Images jobs.	When Distribute Images jobs require approval, Software Management doesn't allow the schedule time for the job to be changed from Browse Job Status dialog boxes.  Create a new job and submit for approval.
Software Management: cannot Undo an Upgrade operation on Microcom and Catalyst devices.	Undo software upgrade not supported on device.	Check Supported Device Matrix in online help for supported devices and software releases and Software Management features.
Software Management: Distribute Images and Image Import jobs fail on a device.	Defective software is running on the device.	Go to CCO and examine the software image. If the software image is not deferred, enable debugging and check the Enable Debugging check box (Admin; Software Management; Edit Preferences). Rerun the job, and then use the Mail or Copy Log file option to extract Software Management debugging information. Send the information to Cisco TAC or your customer support with a complete description of the problem.
Software Management: job remains in "pending" state after scheduled time.	Essentials server is not functioning, or has been powered off or rebooted before job schedule time arrives.	Software Management moves the job to error state 1 hour after the job schedule time.  Do not alter the job while in "pending" state; the system will take care of it. If necessary, create another job.

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Software Management: job remains in “running” state, and the Job Details report shows no progress on job.	Essentials server is not functioning, or has been powered off or rebooted while the job is running, causing the job to be abnormally terminated.	Software Management moves the job to error state one hour after the job schedule time.  Do not alter the job while in “pending” state; the system will take care of it. If necessary, create another job.
Software Management: while adding modem images or CIP microcode images into the software management library, the image type is displayed as “Unknown.”  Software management cannot retrieve attributes from images.	Images for Cisco 3640 digital modems are not imported as AS5300 format files.  The Microcom firmware image is not the combined firmware/DSP code.  The CIP microcode version is older than 22.0.	Download a supported version of software/firmware from CCO.  Check the Supported Device Matrix in online help for supported devices and software releases.
Software Management: cannot schedule Distribute Images and Image Import jobs.	The at service is not running or is incorrectly configured.	If Essentials is running on Window NT, use Control Panel; Services to check that the at service is running. If it is not, start it manually. If Essentials is running on Solaris, check that the /usr/bin/at command is present.  Check that the at.deny file in /usr/lib/cron directory does not contain the bin username.
Software Management: Essentials cannot upload images from device.	Essentials needs read-write SNMP access to device.	Configure the read-write community string on the device.
Software Management: Mail or Copy Log File function does not mail log files (Windows NT only).	E-mail address is incorrect.	Use the correct e-mail address in the Mail or Copy Log File submenu.

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Software Management: MICA/Microcom/ CIP card: Software Management does not recognize the MICA/Microcom/CIP cards on AS5x00 or 7x00 device.	Devices are running an unsupported version of Cisco IOS System Software.	See the Supported Device Matrix in online help for supported devices and software releases.
Software Management: RCP is not being used to transfer software images between Essentials and devices.	The device does not support RCP protocol (only IOS devices support RCP). RCP is not properly configured on Essentials server.	Check whether your device is Cisco IOS-based. Make sure that RCP is defined as the preferred protocol. Make sure that the configuration (Admin; System Admin System Configuration) is properly configured with an RCP username. If Essentials is running on a Windows NT machine, verify that the CRMrsh service is running correctly on the Essentials server. (Verify this using Control Panel; Services.) If the service is “stopped,” run it manually.
Software Management: RCP is not being used to transfer software images between Essentials and devices. (continued)		Check the Event Viewer to make sure that the service has started properly. (Access Event Viewer from Administrative Tools group, and then view the application log by selecting Log Application.) If Essentials is running on Solaris, make sure that the home directory for RCP user account contains the .rhosts file and can be written to by the bin user.
Software Management: “Internal Error: Can’t resolve address for proxy” message when invoking functions “Browse Bugs by Device” or “Locate Devices by Bugs.”	A proxy or DNS is incorrectly set up.	Check the proxy URL in Admin; System Admin System Configuration. If you configure proxy using a host name, check the DNS configuration on the Essentials server. Check that proxy configuration is not set for login each time. If these actions do not solve the problem, run your browser on the server where Essentials is installed, configure the proxy in the browser, and check whether www.cisco.com is accessible.

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Software Management: Schedule Synchronization Job report is not mailed (Windows NT only).	E-mail address is incorrect.	Correct the e-mail address in the Schedule Synchronization Job submenu.
	SMTP server is not configured.	Configure SMTP using Admin; System Admin; System Configuration.
Software Management: unable to download Cisco IOS (error 4151).	The /var/tmp file has insufficient space to accommodate IOS images.	Increase /var/tmp space.
Software Management: CCO Upgrade Analysis screen and Recommend Image Upgrade (from Distribute Images) screen time out.	The connection to CCO from the Essentials server is slow. The CCO server machine is down. CCO filters are not set with the right criteria.	These operations require access to CCO for image information. Make sure that the CCO server is up and running. Select the right filtering criteria, and retry the operation. Select a fewer number of devices, and retry the operation. If these actions do not solve the problem, check the proxy configuration, as described in Software Management.
Software Management: upgrade failure.	Software Management does not allow a direct upgrade from version 4.0 software to version 4.2 X.25 software on the Cisco 700 series.	Upgrade the device to version 4.1 first (any feature set), and then upgrade to version 4.2 X.25 software image.
Syslog Analyzer: filters not taking effect immediately after changing.	It takes about 5 minutes for filters to take effect.	If you need the filters to take effect immediately, you must restart the Syslog Analyzer collector.
Syslog Analyzer: no messages on any generated syslog report.	Network devices are not sending messages to Essentials server.	Examine the Syslog Analyzer Collector Status (Admin; Syslog Analysis; Collector Status). If numbers are all zero, then verify that network devices are sending messages to the Essentials server.  Refer to online help for information on setting up a Cisco IOS/Catalyst device.

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Syslog Analyzer: message source is given as “???” in /var/syslog_info (Solaris only.)	Solaris bug has occurred; syslogd cannot resolve the source address of the network device sending the message.	Add the name resolution for this device to DNS, /etc/hosts, or your naming service.  Alternatively, install the Solaris patch 103291-02. This will change the “???” to an octal IP address in brackets ([171.69.219.72.1.2]). This allows the format to be parsed by Syslog Analyzer.
Syslog Analyzer: syslog messages get appended to /var/log/syslog_info (Solaris) or to c:\Program Files\CSCOpX\log\syslog.log (Windows NT), but all Syslog Reports are empty.	Processes are not running properly.	Check whether Syslog Analyzer is running properly (Admin; System Admin; Process Status); if not, start it.  Check that CMLogger, RmeOrb, and DBServer are running; if not, restart the system.
	A timestamp problem has occurred.	If the Messages Processed counter is not zero, check timestamps for a message in the syslog file. If there are two timestamps and the second timestamp is current, then the Syslog Analyzer uses the second timestamp. If the second timestamp is older than 7 days, the reports do not display it.  If the Message Processed counter is zero and the Messages Filtered counter is not zero, then change the filters.  If the Messages Processed and Messages Filtered counters are zero, but the Invalid Messages counter is not zero, contact Cisco TAC or your customer support.
Syslog Analyzer: remote collector not running properly when installed and started on non-Essentials machine.	Configuration parameters are incorrect.	Check the remote collector table for the name and status of the remote collector: Admin; Syslog Analysis; Collector Status. View SAEnvProperties.ini and check that the parameter BGSERVER is set to the hostname of the Essentials server.  Perform a <b>ping</b> command using this host name to ensure that it is resolvable and reachable from this machine.  On Windows NT, also ensure that the PORT parameter is set to 514.

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Syslog Analyzer: remote collector—messages in syslog file, but not in reports.	An incorrect version of Java is running.	Install Java 1.1.5 or higher.
	The remote collector stopped.	On Solaris, check using the command <code>/usr/bin/ps -ef   grep java</code> . Restart using <code>sh /opt/CSCOsac/lib/sacStart.sh</code> .
	The remote collector is not installed correctly.	On Windows NT, use Control Panel; Services to verify this. If a Syslog_Collector is not listed, then reinstall it using <code>SacNTService/install</code> . If the collector is installed but is not running, start the remote collector from Control Panel; Services. (You must specify the properties file using the <code>-pr</code> option.)



Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
<p>Syslog Analyzer: logging is enabled in the IOS/Catalyst device to send messages to Essentials but is not working.</p> <p>Syslog Analyzer: logging is enabled in the IOS/Catalyst device to send messages to Essentials but is not working.</p>	<p>Messages sent to the Essentials server by network devices are logged by a process independent of the Syslog Analyzer.</p> <p>For Solaris, the logging process is syslogd. For Windows NT, it is the Essentials syslog service.</p> <p>The problem may be that the syslog daemons are not running properly.</p>	<p>Connect to the network device and generate a syslog message as follows:</p> <ol style="list-style-type: none"> <li>1. Telnet to the device and log in. The prompt changes to host&gt;.</li> <li>2. Type <b>enable</b> and the enable password. The prompt changes to host#.</li> <li>3. Type <b>configure terminal</b>. You are now in configuration mode, and the prompt changes to host (config)#.</li> <li>4. Ensure that logging is enabled by entering <b>logging on</b>.</li> <li>5. Specify the IP address of the Essential server to receive the router syslog messages; for example, type <b>logging 123.45.255.90</b>.</li> <li>6. Type <b>end</b>.</li> </ol> <p>For Solaris, view the file pointed to by the line "local7.info" in the file /etc/syslog.conf (default /var/log/syslog_info). If this file does not exist, create one, and make sure that it is accessible by syslogd.</p> <p>For Windows NT, view the file in C:\Program Files\CSCOPx\log\syslog.log</p> <p>Send an HUP signal to syslogd (<b>kill -HUP `cat /etc/syslog.pid`</b>).</p>
<p>Syslog Analyzer: logging is enabled in the IOS/Catalyst device to send messages to Essentials but is not working.</p> <p>Syslog Analyzer: logging is enabled in the IOS/Catalyst device to send messages to Essentials but is not working. (continued)</p>		<p>If the syslog message is not there, check that the syslog daemons are running properly.</p> <p>For Solaris, type <b>/usr/ucb/ps -aux   grep syslogd</b>.</p> <p>For Windows NT, go to Control Panel and ensure that Essentials syslog service is in "Started" state.</p>

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
	The device might be configured incorrectly.	Ensure that the device is logging to the correct Essentials server. (Refer to the device system documentation for details on enabling syslog.)
<p>Syslog Analyzer: the following error message is sent to the Windows NT Event Viewer when using remote NT Windows collector:</p> <p>“Could not start the Syslog Collector service on the <i>server_name</i> ERROR 0002: The system cannot find the file “specified” new messages not appearing in reports after changing syslog message file (defined using: Admin; Syslog Analysis; Change Storage Options).</p>	Installation failure has occurred.	When installing on a remote Windows NT collector, use the command <b>SacNTService/install</b> (not <b>SacNTService.exe/install</b> ).

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
<p>Syslog Analyzer: the following error messages are sent to the Windows NT Event Viewer when using remote Windows NT collector:</p> <p>“Could not start the Syslog Collector service on the <i>server_name</i> ERROR 1067: The process terminated unexpectedly” and “SacNTService: The service cannot be started without the properties file specified, please specify the properties file you want to use.”</p>	Configuration failure has occurred.	<p>After the SacNTService is installed on a remote Windows NT collector, it must be configured using Control Panel; Services.</p> <p>Ensure that the Startup Parameters field contains the location of the SaenvProperties.ini file (for example, -pr c:\\temp\\SaenvProperties.ini)</p> <p>(Remember to use \\ to separate the directory paths.)</p>
<p>Syslog Analyzer: new messages not appearing in reports after changing syslog message file (defined using: Admin; Syslog Analysis; Change Storage Options).</p>	A new filename needs to be defined in configuration information.	<p>On Windows NT, run the registry editor Regedit. Then go to: HKEY_LOCAL_SYSTEM System CurrentControlSet Services crmlog.</p> <p>Set Parameters to the name of the file for logging syslog messages.</p> <p>On Solaris, modify the /etc/syslog.conf file. (Refer to the Solaris man pages for more information.)</p>
<p>Syslog Analyzer: server runtime error when running Tasks Syslog Analyzer tasks.</p>	CMLogger is not running.	<ol style="list-style-type: none"> <li>1. Log in to Essential as admin.</li> <li>2. Select Admin; System Admin; Start Processes.</li> <li>3. Start the system. If the task still fails, select Admin; Troubleshooting; Process Failures to get a list of Essential back-end processes that have failed.</li> <li>4. Select Admin; Troubleshooting; Self Test.</li> </ol>

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
Syslog Analyzer: server runtime error when running Tasks Syslog Analyzer tasks. (continued)		<ol style="list-style-type: none"> <li>5. Click Create to create a report.</li> <li>6. Click Display to display the report.</li> <li>7. Select Admin; Troubleshooting; Collect Server Info.</li> <li>8. Click the Product Database Status link to get detailed database status.</li> </ol>
Syslog Analyzer: Unexpected Device Report (Tasks; Syslog Analysis; Unexpected Device Report) contains syslog messages that should not be in the Standard Report (Tasks; Syslog Analysis; Standard Report).	The Syslog Standard Device Report displays messages for all selected devices and dates. These devices must be managed by Essentials inventory. This error could arise if the device is not managed by Essentials inventory.	<p>Add the device to inventory by selecting Admin; Inventory; Add Device.</p> <p>After adding the device, messages formerly in the Unexpected Device Report will not be transferred to the Standard Report, but new messages for the device will be displayed in the Standard Report.</p>
	If the device is managed by Essentials inventory, it could be a name resolution problem. (Syslog analyzer uses all IP addresses associated with the device name to try to map it to a device managed by Essentials Inventory.)	<p>Verify the device name-to-IP address mapping as follows:</p> <ol style="list-style-type: none"> <li>1. For Windows NT, view the syslog.log file in C:\Program Files\CSCOpX\log. For Solaris, view the syslog_info file in /var/log.</li> <li>2. Note the source of the syslog messages from the device (the source is the host name appearing immediately after the timestamp).</li> <li>3. Obtain a list of IP addresses (perform <b>nslookup</b> on the device name at the command prompt).</li> <li>4. Generate a detailed device report (Tasks; Inventory; Detailed Device Report) for the particular device.</li> <li>5. Check the Network Address column, and verify that the IP addresses returned from <b>nslookup</b> appear on the list.</li> </ol>

Table 24-5 Troubleshooting Suggestions (continued)

Error Message	Possible Reasons	Actions
		6. If any IP addresses are not on the list, then the device name-to-IP address mapping is incorrect. Update the naming services (DNS, /etc/hosts, etc.) with the missing IP addresses.
System Configuration: server runtime error when running Admin; System Admin; Device Configuration task.	CMLogger is not running.	Same action steps as the previous row, which has “CMLogger is not running” as a possible reason.
“TFTP server on the device timed out” error appears during operation on Cisco 700 Series devices.	The TFTP client cannot be accessed on the Essentials server.	Check whether the TFTP client is available on the Essentials server. Solaris: /usr/bin/tftp Windows NT: nnt\system32\tftp.exe

## Information for Troubleshooting CWSI (CiscoWorks for Switched Internetworking) Campus

The following subsections provide information to troubleshoot CWSI Campus:

- Understanding CWSI Campus Background Processes
- Starting CWSI Campus
- Improving CWSI Campus Performance
- Entering Valid Community Strings
- Working with Discovery
- Display Discrepancy Reports

### Understanding CWSI Campus Background Processes

To use many of the troubleshooting techniques, you must first understand the background processes of CWSI Campus. Refer to the “Enabling trace or debug” and “Stopping and Starting CWSI Campus Processes” sections for information about understanding and working with the CWSI Campus background processes:

CWSI Campus includes the following major technology components that enhance the overall performance:

- A multithreaded discovery process for identifying network devices and accessing SNMP and RMON information

- An underlying database engine that offers increased performance and data storage without requiring external administration by network operators
- Object-oriented technology for interprocess communication between software components and databases

These background processes are described in Table 24-6. The server processes represent the processes controlled by the CWSI Campus software; these are the background processes for the client processes. The client processes require user input.

To verify that these processes are running, you can use the **pdshow** command from any command prompt. You also can use the Task Manager (on Windows NT) or **ps-** (on UNIX systems).

**Table 24-6 CWSI Campus Processes**

Process	Description	Type	pdshow	Task Manager or ps
Process Manager	This daemon manager starts and monitors many of the CWSI Campus processes, including ANI, RTPoller, Event Channel, and OSAgent. The Process Manager is one of the Essentials processes that monitors CWSI Campus.		dmgt	
AniServer	ANI is a multithreaded Java program. It is installed as a daemon process and runs in the background, beginning as the workstation starts up. ANI is responsible for the discovery of the network, and it does all SNMP communication.	Server	AniServer	jre.exe
CWSI Campus Database	The database engine is responsible for checking all ANI information into the database. For ANI, this is a checkpoint only. ANI performs all its operations from the data stored in memory. The database stores user-entered information and allows ANI to quickly load its data model into memory upon a subsequent restart.	Server	DbCwsi (UNIX only)	dbeng50 (The Essentials database engine has the same name, so your system should be running two processes with this name.)

Table 24-6 CWSI Campus Processes (continued)

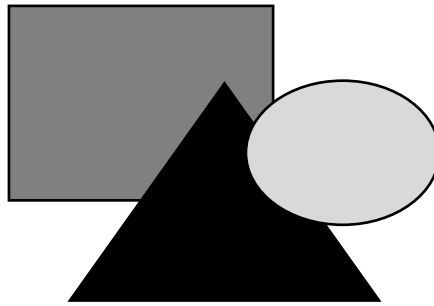
Process	Description	Type	pdshow	Task Manager or ps
OSAgent	OSAgent is a Common Object Broker Architecture (CORBA) agent that passes messages between the AniServer and clients. All servers must register with the OsAgent, and all clients looking for service find it with the help of the OsAgent. The CWSI Campus login window is used to register the CWSI Campus client with OsAgent and to indicate that it is searching for an ANI named AniServer.  The OSAgent is one of the Essentials processes that monitors CWSI Campus.	Server	RmeOrb	osagent
RTPoller	This process is used by the AtmDirector application for periodic polling of the network for status of devices and links.	Server	RTPoller	jre.exe
Event Channel	This process sends events to all servers and clients that have registered with it.	Server	EventChannel	jre.exe
CWSI Campus Client	This process downloads a complete picture of the topology so that selection and display are done locally. It receives events from ANI about changes in discovery or network status.	Client	—	—
UserTracking Client	This process provides a graphical user interface for the UserTracking application.	Client	—	—
VlanDirector Client	This process provides a graphical user interface for the VlanDirector application.	Client	—	—
Topology Client	This process displays network topology and is used as the primary starting point for other applications.	Client	—	—
AtmDirector	This process links to the OSAgent and CWSI Campus database for some processing.	—	—	—

Table 24-6 CWSI Campus Processes (continued)

Process	Description	Type	pdshow	Task Manager or ps
CiscoView	This process links to the OSAgent to provide communication with devices on the CWSI Campus map and CiscoView.	—		
TrafficDirect or	TrafficDirector does not link directly with any of the background processes. You can start TrafficDirector from the CWSI Campus map.	—		

Figure 24-2 illustrates the interactions of the CWSI Campus processes.

Figure 24-2 CWSI Campus Architecture



## Enabling trace or debug

Some of the troubleshooting steps may require that you enable **trace** or **debug** in ANI to gather additional information. You also might be asked to enable **trace** or **debug** for particular subsystems of CWSI Campus when you contact your Cisco TAC representative for additional assistance.

To enable **trace** and **debug**, follow these steps:

- 
- Step 1 Open a command prompt or shell window.
  - Step 2 Enter **stopcwiserver** to stop the CWSI Campus server processes.
  - Step 3 Start ANI and enable **trace** and **debug** by entering the following command:
 

```
ani-trace <subsystem> -debug <subsystem> -logfile <logfile name>
```

 The troubleshooting instructions or the TAC representative will provide you with the appropriate subsystem name. You can enter any name for the log file, and the log file will appear in the <CWSIROOT> directory, where <CWSIROOT> is the directory in which you installed CWSI Campus.
  - Step 4 To stop the process, press Ctrl-C from the command prompt or shell window.
  - Step 5 Contact your Cisco TAC representatives, and provide them with this log file.



## Stopping and Starting CWSI Campus Processes

The following command-line scripts control the CWSI Campus processes:

**stopcwsiserver** stops the CWSI daemons.

**startcwsiserver** starts the CWSI daemons.

To use these scripts, you must be signed in as the administrator on Windows NT or as root on UNIX operating systems. Open a command prompt or shell window. Enter **stopcwsiserver** to stop the CWSI Campus server processes. When the prompt returns, all the daemons have been stopped. To restart the processes, enter **startcwsiserver** and wait until the prompt returns.

## Losing the Connection to EventChannel

If an error occurs stating that you have lost connection to EventChannel, follow these steps:

- 
- Step 1** From the command prompt or shell window, enter **pdshow AniServer** to determine whether AniServer is still running. If it is not running, continue with Step 3.
  - Step 2** Check the start and stop time to determine whether AniServer was restarted while CWSI Campus was running. If AniServer did go down without your knowledge, open the ani.log file to determine the cause.
  - Step 3** From the command prompt or shell window, enter **pdshow EventChannel** to determine whether EventChannel is running. If EventChannel is not running, continue with Step 5.
  - Step 4** Check the start and stop time to determine whether EventChannel was restarted while CWSI Campus was running. If AniServer had been restarted, EventChannel is reset, which terminates the connection between the CWSI Campus client and Event Channel.
  - Step 5** If either AniServer or EventChannel are not running, follow these steps:
    - Exit CWSI Campus.
    - Enter the **startcwsiserver** command.
    - Start CWSI Campus.

## Starting CWSI Campus

If you have difficulty starting the CWSI Campus applications, follow the tips in these subsections.

If you have just restarted your computer and cannot log in to <Hostname>AniServer, the ANI server might not be ready to receive messages. Wait a few minutes, and then try to log in again.

If you still cannot log in, refer to the previous section of “Troubleshooting Information for CiscoWorks 2000 Installation and Setup.” That section includes detailed steps for resolving this error on Windows NT and UNIX systems.

## Identifying a Corrupt Database

A corrupt database cannot be easily identified. In past versions of CWSI Campus, symptoms included a connection that hangs or intermittent hanging. However, these problems have been resolved. Currently, the only way to know definitively whether the database is corrupt is to look at the ani.log file. If many SQL exceptions and errors are present in the ani.log, the database may be corrupt.

## Replacing a Corrupt Database

ANI cannot perform effectively with a corrupt database. If you determine that you have a corrupt database, you need to reinitialize a new database.



### Note

If you have entered information into the UserTracking application, this information will be lost when you delete the corrupt database.

You can replace a corrupt database using two different methods:

- Running the scripts
- Replacing the corrupt database manually

These will be discussed next.

## Running the Script

If you run the script to replace a corrupt database, the script automatically stops all CWSI Campus servers. After the database engine stops, the script then erases the old database, sets the correct permissions, and replaces the old database with an empty, reinitialized database. The script automatically restarts the CWSI Campus servers.

To use this script, follow these steps:

- 
- Step 1** Run the reinitdb script.
- On Windows NT, select Run from the Start menu and enter **reinitdb**.
- On UNIX systems, log in as root and run the reinitdb script located in the <CWSIROOT>/bin directory.
- Step 2** Read the information that appears on the screen.
- Step 3** Press any key to run the script, or press Ctrl-C to exit out of the script without running it.
- Step 4** After the script finishes, wait a few minutes before starting CWSI Campus to allow time for the CWSI Campus servers to start up properly.

## Replacing the Corrupt Database Manually

You should not need to manually replace a corrupt database because the script automatically performs all necessary steps for you. However, you can use this method if you want to retain a copy of your old database.



### Note

If you are using CWSI Campus on a UNIX operating system, you may need to change the owner and group before replacing the database. When you copy the cws\_i\_ini.db file, it sets the owner and group to your current user. If you do not change it, CWSI Campus will not function properly. To prevent this, you must be sure that both the owner and the group are set to BIN.

To create a new database, follow these steps:

- 
- Step 1** Run the stopcwsiserver script.
- Step 2** Locate the current database: <CWSIROOT>\db\data\cws\_i.db.

- Step 3** Back up the current database by renaming it. For example, you could name it `cwsibold.db`.
- Step 4** Make a copy of the `cwsi_ini.db` file (which is also in the data directory).



---

**Note** Do not delete or rename the original `cwsi_ini.db` file (which is also in the data directory).

---

- Step 5** Rename the copy of `cwsi_ini.db` to `cwsi.db`. This is a fresh database file.
- Step 6** Delete the `cwsi.log` file.
- Step 7** Run the `startcwsiserver` script.

## Using the Same Database on Multiple Workstations

You cannot install CWSI Campus on multiple workstations and allow them to share the database. Also, if you plan to install multiple copies of CWSI Campus on your network, you should change the name of the AniServer that each copy is accessing.

## Using Multiple Copies of CWSI Campus

If you plan to install multiple copies of CWSI Campus on your network, you should be aware of how the CWSI Campus discovery process works in this environment. The discovery process uses ANI, which runs as a server process and exchanges information with other CWSI Campus applications running as clients. Each AniServer is intended to manage a single domain. Therefore, if you install another copy of CWSI Campus configured with the same AniServer name (AniServer, by default) in your network, unpredictable behavior might result, depending on which AniServer the client chooses as its default AniServer.

Depending on the available system resources on your initial CWSI Campus system, using the wrong AniServer might result in poor system performance of all CWSI Campus systems that are accessing and using the resources of the default AniServer.

If you want to install another copy of CWSI Campus to manage another domain, you must manually configure your systems to run separate AniServer processes.

To configure your systems, follow these steps:

- 
- Step 1** Close all CWSI Campus applications.
- Step 2** Run the `stopcwsiserver` script.
- Step 3** Locate and open the `ani.properties` file with a text editor.
- The `ani.properties` file is located in the `<CWSIROOT>/etc/cwsi/` directory.
- Step 4** Change the following line to rename the AniServer process running on your local workstation:

```
AniName = AniServer_Name
```

For example, if you just installed a Solaris version of CWSI Campus, you could rename the AniServer to `SOLAniServer`.

- Step 5** After making these changes, save the file and close your text editor.
- Step 6** Run the `startcwsiserver` script.

## Improving CWSI Campus Performance

You can improve the performance of CWSI Campus by reducing the overhead on the CWSI Campus workstation. To reduce the CPU cycles required by CWSI Campus, follow these steps:

- Step 1** Reduce the number of discovery threads. This process causes discovery to take less CPU power, but discovery will take longer. To change the discovery threads, follow these steps:



**Note** The operation of ANI and CWSI campus clients depends on the information in the ani.properties file. An incorrect entry in this property file can cause CWSI Campus to operate incorrectly. Follow the instruction carefully, and do not attempt to edit other information.

- Run the stopcwsiserver script.
- Locate the ani.properties file in the CWSI directory.
- Locate the following line:  
`Discovery.threads=12.`
- Change this line so that it now states:  
`Discovery.threads=5.`
- Run the startcwsiserver script.

- Step 2** In UserTracking, increase the VMPSMajor and VMPSMinor time schedules.

- Step 3** Increase the discovery time scheduling interval.

- Step 4** Change the discovery time scheduling interval to be fixed (once a day, twice a day) based on your need for timely information.

- Step 5** Set up the system for high performance.

Install enough physical memory to handle CWSI Campus and any other programs that you run simultaneously. You should avoid using swapping.

Ensure a fast network connection; the connection should be better than a 10-MB shared media connection.

If you are using Windows NT, use ultra-fast wide SCSI drives. Also, place the swap file on its own partition, if possible, or ensure that it remains unfragmented.

## Entering Valid Community Strings

To allow CWSI Campus to configure the devices in your network, you must ensure that the proper community strings are set. These sections will help you troubleshoot problems that you may experience.

### Which Community Strings Are Valid?

When entering valid community strings, what determines whether these examples are invalid or valid?

Example 1: Invalid Community Strings Entry

```
172.26.1.*:sub1:::sub1:
```

```
172.26.1.*:sub2::::::sub2:
```

Example 2: Valid Community Strings Entry

```
*.*.*.*:sub1::::::sub1:
```

```
172.26.1.*:sub2::::::sub2:
```

The first example is invalid because you have assigned different community strings to the same nested address. CWSI Campus probably will overwrite the first entry with the second. However, unpredictable results are also possible.

The second example is valid because 172.26.1.\* is an address nested in the \*.\*.\*.\* address.

## What Happens If I Enter an Invalid Write Community String?

If you accidentally enter an invalid write community string, you will still be able to discover the network (provided that you entered a valid read-only community string). You will not be able to perform any write actions until you enter a valid read-write string.

## Working with Discovery

If you have experienced difficulty interpreting your discovered network, follow the suggestions in this section for assistance with common problems.

## Why Do Links Appear as Dashed Lines?

When a link between devices appears as a dashed line, it means that during the last discovery cycle, CWSI Campus was incapable of doing a complete discovery of one of the devices at either end of the link. This situation could happen if the link is inoperable for any reason, such as if the link was removed from the network.

The most likely explanation for these dashed lines is an SNMP timeout. SNMP typically has the lowest priority of the background processes for the Cisco device system. For example, SNMP can be affected if you create a new VLAN because a spanning-tree recalculation occurs, which takes precedence over SNMP.

You can lengthen the SNMP timeout for an individual device. To lengthen the timeout, follow these steps:

---

**Step 1** Select Edit; SNMP Communities from the CWSI Campus map window.

**Step 2** Enter the community string using this syntax:

```
target:read:UNUSED:timeout:retries:UNUSED:UNUSED:write:
```

The default timeout is 3 seconds.

**Step 3** If individual devices are configured with different community strings, enter new lines for each device. Any changes made to the community strings take effect immediately.

## Why Do Devices Appear with a Red X?

Devices with a red X on them are not being discovered properly. For any device to be discovered by CWSI Campus, the following criteria must be met:

- CWSI Campus has the proper SNMP community strings.
- You should be able to **ping** the device.
- The device should be running an SNMP server.
- The device is visible through CDP or ILMI by its neighbors.
- The device can see its neighbors through CDP or ILMI.
- If the device has a **permit** list, you must include the IP address of the network management workstation.
- The software version on the device should support CDP or ILMI.

## Why Do Devices Appear as an Empty Box with a Red X?

Devices appearing as a box with a red X signify that the device is reachable but is unknown to CWSI Campus. This icon is typically displayed for non-Cisco devices. It may also display if a new Cisco device has been released since the last release of CWSI Campus.

## Why Does Discovery Take a Long Time?

Several factors determine how long a discovery will take, including the following:

- The number of devices that are unreachable
- The number of LANE objects to be read
- The number of threads allocated to do discovery

If you experience a slow discovery, follow these steps:

- 
- Step 1** Restrict discovery to only the VTP domains that you want to manage.
- Step 2** Ensure that you have entered the appropriate community strings for your devices.
- Step 3** Increase the number of threads available to discovery if you have many devices to discover. CWSI Campus allocates 12 threads to discovery. If you have many slow or unreachable devices, they can fill the thread pool and prevent other devices from being discovered.
- Step 4** To change or increase discovery threads, follow these steps:



### Note

The operation of ANI and CWSI Campus clients depends on the information in the ani.properties file. An incorrect entry in this property file can cause CWSI Campus to operate incorrectly. Follow the instructions carefully, and do not attempt to edit other information.

- Run the stopcwsiserver script.
- Locate the ani.properties file in the CWSI directory.
- Locate the following line:  
`Discovery.threads=12`
- Change the line so that it reads:  
`Discovery.threads=60.`
- Run the startcwsiserver script.

## How Can Discovery Be Disabled?

You cannot completely shut off discovery. CWSI Campus was built on a real-time data model that relies upon discovery data.

You can set the discovery interval to an extremely large number so that discovery occurs only when the ANI server starts or when you manually discover the network.

## How Can Devices Be Deleted?

If CWSI Campus has discovered a device that you do not want displayed on the map, you cannot delete this device. The following solutions are available:

- Remove the links to the device, and drag the device icon to a remote portion of the map so that it does not appear in the main map window.  
This solution works well if the device is in your network, but you do not want to display it on the CWSI Campus map.
- Replace the CWSI Campus database and force an initial discovery.  
This solution works best for erroneously discovered devices that are not really in your network, or if you have removed a device since the initial discovery.

## Why Does the ATM Network Appear as a Cloud?

If CWSI Campus cannot correlate the ATM link information, the ATM network appears as a ATM cloud on the CWSI Campus map. Possible causes and their solutions include these:

- ILMI is not active on the ATM network.
  - Verify that ILMI is active on the ATM devices in your network.
- Default ATM-VLAN has not been properly configured.
- You did not use an ATM device as a seed for discovery.
- ILMI is not returning the correct IP information.
  - ILMI does not automatically update when IP addresses are changed. Reset the LightStream 1010 ATM switch to clear out the ILMI table.
- The ILMI entries are not up-to-date between any given ATM link.
  - Verify that the ILMI entries are up-to-date and that they are consistent.
- Your LANE modules have older software image versions.
  - If any devices have one or more LANE modules and are running software image versions that are older than 3.2(7) or the 11.3(3a)WA4(5), the ATM network will not be discovered properly. Use software image versions 3.2(7) or 11.3(3a)WA4(6) or later.

## Why Do Some Ethernet Links Not Include Speed?

On some devices (typically unknown devices), CWSI Campus can retrieve only the media table from the IF table RFC 1213 MIB ifType. In these cases, the link is displayed as Ethernet. For most devices, CWSI Campus reads the enterprise-specific MIBs, which contain more detailed port-type information. Therefore, 10 M and 100 M are displayed on the map.

## Why Do the Wrong Devices or Connections Appear?

Make sure that your routers do not have the same sysName. Routers advertise sysName as their CDP cache identification, and CWSI Campus depends on CDP information for discovery. Therefore, if you have two or more devices with the same sysName, CWSI Campus displays unpredictable results.

You can also check the log file to see if a large number of duplicate devices has been discovered and rejected as duplicates.

## Why Do Some Unknown Devices Appear with an OID As the Device Name?

Devices that are unsupported by CWSI Campus will not appear with a device name, but will appear with an Object Identifier (OID) instead. CWSI Campus attempts to map the OID to a Cisco product tree MIB. If the OID is under the CiscoProducts or workgroup tree, the OID appears as the device name.

## Why Are Frame Relay CDP Links Not Discovered?

Some Frame Relay CDP links may not be discovered by CWSI Campus, even though their neighbors appear by using the **show cdp** command on the CLI. This is caused by an IOS bug in which point-to-multipoint Frame Relay WAN links do not appear in the SNMP list of CDP neighbors, even though they appear on the CLI.

## Displaying Discrepancy Reports

Discrepancy reports enable you to discover inconsistencies in your network.

These subsections provide information about working with discrepancy reports.

You can display and print reports about inconsistencies in your network map:

- 
- Step 1** From the CWSI Map window, select Reports; Discrepancies.  
The Discrepancy window opens.
  - Step 2** To print the discrepancy report, select File; Export.  
The report is saved as a file. You can print the report from the program in which it has been saved.

## Interpreting the Discrepancy Report

The discrepancy report displays information on inconsistencies or irregularities in your network.

Table 24-7 describes these irregularities that may appear in your report.



When interpreting the discrepancy report, keep in mind that configurations that you set up intentionally may appear as discrepancies. If you are aware that this is how you wanted to configure your network, then do not be overly concerned with the discrepancies.

**Table 24-7** *Discrepancy Table*

Discrepancy	Meaning
Trunk VLANs mismatch	Different ends of a trunk specify different VLANs.
Native VLANs mismatch	Different ends of a single VLAN link specify different VLANs (native VLANs differ).
VLAN name conflict	VLANs with different ISL numbers have the same name in different domains.
VLAN index conflict	VLANs with different names have the same ISL number in different domains.
VLAN SAID conflict	Different SAID numbers are on the same VLAN in different domains.
LANE configuration server ATM address missing	LANE ATM addresses are not found on the ATM switch.
LANE client VLAN/ATM-VLAN misassociation	ATM-VLAN is associated with a VLAN with a different name.
LANE client with no ATM-VLAN	A LANE client has no ATM-VLANs.
LANE broadcast server with no ATM-VLAN	A LANE broadcast server has no ATM-VLAN.
Link duplex mismatch	Full-duplex and half-duplex are configured on either side of a link.
Link speed mismatch	A different link speed is set on either side of a link (for 10/100 ports or for any group of links).
Trunk VLAN protocol mismatch	Protocol encapsulation differs across a trunk (ISL versus 802.1Q).
Trunk/nontrunk mismatch	Trunking ports versus nontrunking ports are configured on either side of a link.
VTP disconnected domain	A link in a VTP domain is not set to trunk. There are devices in this domain that do not communicate through any trunk.
No VTP server in domain	There is no VTP server in the domain.
EtherChannel port spanning tree not disabled	Spanning tree is not supported with Catalyst software release 2.3 and lower. Therefore, you must disable spanning tree on switches with active VLANs that go across the Fast EtherChannel connections. For Catalyst software release 3.1 and higher, you can configure spanning tree on Fast EtherChannel links.

## Customizing the Discrepancy Report

You can customize the Discrepancy Report to display only those discrepancies about which you want to be notified.

- 
- Step 1 From the CWSI Campus Map, select Options; Properties. The CWSI Properties window opens.
  - Step 2 In the Properties window, select Discrepancy. The discrepancies are displayed.
  - Step 3 Select only those discrepancies that you want displayed.

# Troubleshooting Information for Applications Included in CWSI Campus

The following subsections are presented in this section:

- Troubleshooting VlanDirector
- Troubleshooting AtmDirector
- Troubleshooting TrafficDirector
- Troubleshooting CiscoView

## Troubleshooting VlanDirector

Use the information provided here to help you troubleshoot problems with the VlanDirector application.

### Does VTP Need To Be Enabled?

The VlanDirector application requires VTP to be enabled. For most predictable results, Cisco recommends having at least one switch configured as a VTP server, and the remaining switches configured as VTP clients.

### If There Are Multiple VTP Servers in a VTP Domain, Which VTP Server Does VlanDirector Make the Changes To?

If the two VTP servers are in the same domain and are connected by VTP trunks, it does not matter which switch the VlanDirector application changes. VTP ensures that the information on all VTP servers and clients in a single VTP domain is coordinated and shares the same configuration.

If the servers are in different VTP domains, then they do not share VLAN states, and they are both known to the VlanDirector application. You must select the VTP domain in which you want to make the VLAN changes, and the corresponding VTP servers will reflect those changes.

If there are two servers with the same VTP domain that are not connected by trunks, the configurations managed by the two servers may diverge. This configuration is not supported by the VlanDirector application, and it creates a discrepancy.

## Can VLANs in Different VTP Domains Have the Same Name?

You can have VLANs with the same name, provided that other characteristics, such as VLAN Index and SAID value, are also identical. Discrepancies occur when there are identically named VLANs with other attributes that are different (such as index and so on). If the two VLANs share identical definitions, no discrepancy is detected.

## Can You Drag Ports from One VLAN to Another on VTP Transparent Switches?

Attempting to drag a port to a VLAN may or may not work, depending upon the definition of that particular VLAN on both the VTP server and the transparent switch. If the definitions are identical (including name, VLAN index, and so on), the dragging process will probably work fine. However, if the definitions are not identical, then the results are undefined: The process may or may not work. Therefore, to add VTP transparent switches to the same VLANs that are running on the VTP server, you must ensure that the VLAN definitions are consistent.

## Will VlanDirector Display VLAN Information for a Switch That Is in Transparent Mode?

The VlanDirector application does not discover any VLANs configured on a switch in transparent mode. Thus, if the VLAN state of a transparent switch differs from the state reported by a server in the same domain, the VlanDirector application will not properly handle VLAN changes to the transparent switch.

## Why Is the Switch Highlighted When Any VLAN Is Selected?

In the VlanDirector application, you can select a VLAN, and the switches associated with that VLAN are highlighted on the CWSI Campus map. You can also highlight a switch in the CWSI Campus map to indicate which VLANs are active on that switch. However, if the switch has trunks that carry all VLANs, then the switch will be highlighted, regardless which VLAN you select.

## Why Is There a Lighting Bolt on the Port?

The lightning bolt on a port means that the port is part of a link (either a device-to-device link or a connection into a shared media).

The lightning bolt is used to differentiate between a port that is connected to another switch (linking) and a port that is configured as a user port. Cisco Discovery Protocol (CDP) has discovered a CDP peer out of this port.

The bolt indicates that you cannot manipulate the port for VLAN configuration by itself; you must configure it as part of its corresponding link. You do this by selecting the link from the CWSI Campus map and dragging the link to the appropriate VLAN.

## Configuring LANE Services

The VlanDirector application enables you to configure LANE services. Tables 24-8 through 24-11 provide you with detailed troubleshooting information for resolving LANE configuration problems.

**Table 24-8 ATM-VLANs Missing in VlanDirector Names Window**

Probable Cause	Possible Solution
Devices do not have required software image versions.	Make sure that all devices are running the required software image version for LANE services. See the CWSI Campus release notes for the correct software image versions for your devices.
Incorrect read community strings were entered in CWSI Campus.	Verify that the SNMP community strings entered in CWSI Campus match the actual ones for all the devices on which LANE components are being configured.  To check the community strings, select Edit; SNMP Communities from the CWSI Campus map. See the section “Preparing for Network Discovery” of the <i>Getting Started with CWSI Campus</i> publication if you need additional assistance entering the correct community strings.
No SNMP connectivity is on LANE devices.	Make sure that all LANE devices are reachable through SNMP.
SNMP timeouts are occurring on the devices.	Check the CWSI Campus map to see if devices appear with a red X on them.  Increase the SNMP timeout for the devices, and rediscover the devices or network.  To lengthen the timeout, select Edit; SNMP Communities from the CWSI Campus map window. See the section “Preparing for Network Discovery” of the <i>Getting Started with CWSI Campus</i> publication if you need additional assistance entering the SNMP timeout.
LANE servers on devices do not have enough memory.	If the configuration server resides on a Catalyst 5000 series switch, verify that the device has at least 16 MB of memory.
The configuration servers cannot be discovered.	Verify that the master configuration server has been discovered by selecting Edit; Configure Config Server from the VlanDirector Names window.  Cisco does not recommend using more than one master configuration server in an ATM fabric. If there are multiple master configuration servers, CWSI Campus will randomly select one of them to use for discovery, and the others will be ignored.

Table 24-8 ATM-VLANs Missing in VlanDirector Names Window (continued)

Probable Cause	Possible Solution
The LE servers cannot be discovered.	<p>You should have at least one active LE server for each ATM-VLAN.</p> <p>The configuration server database should reflect the correct master ship state of the LE servers.</p> <p>Use the CLI to check the configuration server database. A valid configuration server database is similar to the following:</p> <pre>at-5000-4atml#sh lane database LANE Config Server database table 'cwsilecsDb' no default elan elan 'vlanElanTest': un-restricted server 47.00918100000000603E899701.00E01431A421.01 (prio 0) LANE Config Server database table 'lecsdb_57_87.3' bound to interface/s: ATM0 default elan: default elan 'default': un-restricted server 47.00918100000000603E899701.00E01431A421.01 (prio 0) active elan 'vlan9': un-restricted server 47.00918100000000603E899701.00E01431A421.09 (prio 0) active</pre>
The ATM-VLAN may be associated with a VTP VLAN with a different name.	In the VlanDirector application, a VTP VLAN with an associated ATM-VLAN is represented under the VTP Domain folder as one entry with an ATM cloud icon beside it. For example, when a VTP VLAN with the name X is associated with an ATM-VLAN with the name Y, it is represented as one entry under the VTP Domain folder as X with an ATM cloud icon beside it. The name Y does not appear anywhere.
These solutions do not resolve the problem.	<p>Enable <b>trace</b> and <b>debug</b> entering the following command:</p> <pre>ani -trace frontend -debug vlad -debug lane -debug ilmi -trace pnni -debug vmpsadmin -trace devices -debug devices.C5K -debug devices.C5K.C5500 -debug devices.LS1010 -debug devices.Router -debug devices.C3K -debug devices.C2800 -logfile ani.log</pre>

Table 24-9 Incorrect or Missing Association between VTP VLAN and ATM-VLAN

Probable Cause	Possible Solution
This is the same as the probable cause in Table 24-7's contents in rows 1 through 4.	Check the corresponding solutions in the same rows in Table 24-7.
No LANE clients exist for the ATM-VLAN.	<p>Configure LANE clients for appropriate ATM-VLANs.</p> <p>See the "Configuring and Monitoring LANE Services" scenario in the <i>Getting Started with CWSI Campus</i> publication.</p> <p>See the software configuration guide for your specific device.</p>

**Table 24-9 Incorrect or Missing Association between VTP VLAN and ATM-VLAN (continued)**

Probable Cause	Possible Solution
LANE clients exist but are not discovered.	Make sure that devices are not timing out.
LANE servers exist on devices that do not have enough memory.	If the configuration server resides on a Catalyst 5000 series switch, verify that the device has at least 16 MB of memory.
No rediscovery is done after configuring VLANs with LANE services enabled.	<ol style="list-style-type: none"> <li>1. From the CWSI Campus Map window, select View; Rediscover Map.</li> <li>2. Start the VlanDirector application by selecting Tools; VlanDirector from the CWSI Campus Map.</li> <li>3. From the VlanDirector Names window, select File; Refresh.</li> </ol> <p>See the <i>Using the Campus VlanDirector Application</i> publication for additional assistance.</p>
These solutions do not resolve the problem.	<p>Enable <b>trace</b> and <b>debug</b> entering the following command:</p> <pre>ani -trace frontend -debug vlad -debug lane -debug ilmi -trace pnni -debug vmpsadmin -trace devices  -debug devices.C5K -debug devices.C5K.C5500 -debug devices.LS1010 -debug devices.Router -debug devices.C3K -debug devices.C2800 -logfile ani.log</pre>

**Table 24-10 Cannot Create or Modify a VLAN with LANE Services Enabled**

Probable Cause	Possible Solution
This is the same as the probable cause in Table 24-7's contents in rows 1 through 4.	Check the corresponding solutions in the same rows in Table 24-7.
LE server was not created.	Increase the timeout for the device on which you have configured the LE server.
The configuration server could not be configured.	<p>The LE server ATM address already exists in the configuration server database.</p> <p>Make sure that the ATM address of the newly created LE server is not already present in the configuration server database.</p>
These solutions do not resolve the problem.	<p>Enable <b>trace</b> and <b>debug</b> entering the following command:</p> <pre>ani -trace frontend -debug vlad -debug lane -debug ilmi -trace pnni -debug vmpsadmin -trace devices -debug devices.C5K -debug devices.C5K.C5500 -debug devices.LS1010 -debug devices.Router -debug devices.C3K -debug devices.C2800 -logfile ani.log</pre>

**Table 24-11 Cannot Configure the Configuration Server**

Probable Cause	Possible Solution
This is the same as the probable cause in Table 24-7's contents in rows 1 through 4.	Check the corresponding solutions in the same rows in Table 24-7.
The configuration server database was not configured.	Increase the timeout for the device on which you have configured the configuration server.
The configuration server already exists.	Using the CLI, remove the existing configuration server database. The following is a sample configuration: <pre>interface ATM0 mut 1500 atm pvc 1 0 5 qsaal atm pvc 2 0 16 ilmi atm ilmi-keepalive 5 lange config database xxxx</pre> Remove this line: <pre>Lange config database xxxx</pre>
ATM addresses could not be assigned to the configuration server.	Using the CLI, remove the ATM address association, if it already exists. The following is a sample configuration: <pre>interface ATM0 mtu 1500 atm pvc 1 0 5 qsaal atm pvc 2 0 16 ilmi atm ilmi-keepalive 5 lane config fixed-config-atm-address lane config auto-config-atm-address lane config config-atm-address lane config database xxxx</pre> Remove these lines: <pre>lane config fixed-config-atm-address lane config auto-config-atm-address lane config config-atm-address lane config database xxxx</pre>

Table 24-11 Cannot Configure the Configuration Server (continued)

Probable Cause	Possible Solution
The configuration server's ATM address could not be configured on the ATM switches.	Verify the community strings and increase the SNMP timeout.  To check the community strings and increase the SNMP timeout, select Edit; SNMP Communities from the CWSI Campus map. See "Preparing for Network Discovery" of the <i>Getting Started with CWSI Campus</i> publication if you need additional assistance entering the correct community strings and timeout value.
These solutions do not resolve the problem.	Enable <b>trace</b> and <b>debug</b> entering the following command:  <pre> ani -trace frontend -debug vlad -debug lane -debug ilmi -trace pnni -debug vmpsadmin -trace devices -debug devices.C5K -debug devices.C5K.C5500 -debug devices.LS1010 -debug devices.Router -debug devices.C3K -debug devices.C2800 -logfile ani.log </pre>

## Troubleshooting AtmDirector

This subsection describes how you can use the tools within the AtmDirector application to troubleshoot and enhance your network.

### Logging Messages

The AtmDirector application logs error and debug messages that are useful when you need to troubleshoot your network or to resolve any problems. The error and debug messages are automatically recorded (by default) in the \$CWSIROOT/log/atmd.log file.

To set the logging option on or off, follow these steps:

- 
- Step 1** Select Preferences; Options from the AtmDirector main window. The Global Preferences window opens.
  - Step 2** Select the Miscellaneous index tab. The Miscellaneous options are displayed.
  - Step 3** Click the On button to log error and debug messages, or click the Off button to stop logging the error and debug messages. Topology and discovery messages are automatically logged if the On button is selected. This is the default.




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**Note** If the discovery process is polling, messages are logged after Discovery has completed polling.

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- Step 4** Click OK.

You can start or stop logging the error and debug messages while the AtmDirector application is running. The option that you select (On or Off) will not change when the application is terminated.




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**Note** It is recommended that you keep the debug option On.

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## Analyzing the Log

You can begin to troubleshoot your network and resolve any problems by analyzing the error and debug messages that have been recorded in the logfile of the AtmDirector application. The logfile with the error and debug messages is kept in the \$CWSIROOT/log/atmd.log file.

**Note**

If there are no error or debug messages in the logfile, the logging option was not On.

The error and debug messages in the \$CWSIROOT/log/atmd.log file are in the following format:

**<timestamp> AtmDirector:<severity>:<component>:<message>**

Example error and debug messages include the following:

**1998/07/29 17:09:15.55 AtmDirector:Info:GUI:Started AtmDirector Initialization...**

**1998/07/29 17:09:15.56 AtmDirector:Debug:Topology:Running in Debug All mode.**

**1998/07/29 17:09:17.08 AtmDirector:Debug:ORB:EVENTCHANNEL CONNECTED...**

**1998/07/29 17:09:30.37 AtmDirector:Info:GUI:Finished AtmDirector Initialization.**

## Checking the Status of Devices and Links

The AtmDirector application monitors devices and links at defined intervals and shows their status on the topology map by changing the colors of the affected device icons and indicating the status of the links.

You can redefine the intervals by changing the SNMP polling. The polling parameters (Timeout, Retries, Data Collection Polling Interval, and Utilization Polling Interval) are displayed in the Global Preferences window.

The Timeout parameter default is 5 seconds. If the polling process does not receive a response from a device in the time specified, the device is considered unreachable.

The Retries parameter default is three attempts. If the discovery process cannot reach a device in the specified number of attempts, the device is considered unreachable.

The Data Collection Polling Interval parameter default is 30 minutes. This polling interval is used by RMON.

The Utilization Polling Interval parameter default is 10 seconds. This polling interval is used for the utilization calculations in the VC list.

## Checking ATM Networks

You can troubleshoot your ATM network or monitor the traffic and usage of its virtual channels (VCs) by using specific reports and graphical displays provided by the AtmDirector application. Refer to the following sections of online AtmDirector manual, located at [http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/c2si\\_2\\_2/atmd\\_c/vcs.htm#xtocid2851315](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/c2si_2_2/atmd_c/vcs.htm#xtocid2851315) for the information that you need:

- List Virtual Channels
- Selecting Virtual Channels

- Checking Link Utilization
- Checking Virtual Channel Utilization
- Plotting Utilization
- Tracing Virtual Channels
- Display Trace Reports in Tabular Form
- Display Trace Reports Graphically
- Clearing Trace Reports
- Display Virtual Channels Between Devices
- Checking Virtual Channel Connectivity
- Triggering OAM Pings
- Display an OAM Ping Report
- Setting Up Soft Permanent Virtual Channels or Paths
- Setting the Interface Configuration

## Checking ATM-VLAN Networks

You can troubleshoot your ATM-VLAN network by monitoring its LANE components and virtual channels, and by using specific reports and graphical displays provided by the AtmDirector application. Refer to the following sections of online AtmDirector manual, located at [http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/atmd\\_c/lanetopo.htm](http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/atmd_c/lanetopo.htm) for the information that you need:

- Displaying ATM-VLAN Information for Fabric Devices
- Displaying Summary Information for an ATM-VLAN
- Viewing Client Summary Information
- Viewing LE Server/Broadcast Server Summary Information
- Viewing Configuration Server Summary Information
- Viewing the Configuration Server Database
- Viewing the Configuration Server ATM-VLAN Configuration Table
- Monitoring Control Connections for a LANE Component
- Monitoring Data Direct Connections for a Client
- Monitoring Client Status and Control Parameters
- Monitoring the LE\_ARP Table
- Monitoring LE Server Status
- Monitoring Configuration Server Addresses
- Graphing Client Performance Information
- Graphing Broadcast Server Performance Information

## Checking PNNI Networks

You can use the AtmDirector application to troubleshoot your PNNI network by checking the node configurations (including the PNNI timers), monitoring the link status of neighboring peers and PNNI addresses, and tuning the PNNI parameters. Refer to the following sections of online AtmDirector manual, located at the following web addresses, for the information you need:

[http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/atmd\\_c/pnnicfg.htm](http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/atmd_c/pnnicfg.htm)

[http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/atmd\\_c/pnniaddr.htm](http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/atmd_c/pnniaddr.htm)

[http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/atmd\\_c/pnnimgmt.htm](http://cio.cisco.com/unviercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/atmd_c/pnnimgmt.htm)

- Displaying the Node Configuration and Information
- Modifying the Node Configuration
- Displaying Link Information
- Displaying the Values of the PNNI Timers
- Modifying the Values of the PNNI Timers
- Displaying Neighboring Peer Link and Status Information
- Display Address Summaries
- Modify an Address Summary
- Add an Address Summary
- Delete an Address Summary
- Displaying Reachable Addresses
- Modify a Reachable Address
- Add a Reachable Address
- Delete a Reachable Address
- Display Address Scope Mapping
- Modify Address Scope Mapping
- Display PNNI Interface Parameters
- Modify PNNI Interface Parameters

## Collecting Data for Troubleshooting

The AtmDirector application has some features that require you to enable data collection for troubleshooting purposes. The collected data is used to help you perform the following tasks:

- Display top *N* active hosts in a fabric or clients in an ATM-VLAN
- Display traffic between hosts or between clients
- Display a graphical analysis of call failures to and from devices in a fabric or ATM-VLAN

Refer to the following sections of online AtmDirector manual, located at

[http://cio/cisco/com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/atmd\\_c/enable2.htm#xtocid56365](http://cio/cisco/com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/atmd_c/enable2.htm#xtocid56365) for the information that you need to collect data:

- Enabling Data Collection

- Setting Up Port Select Groups
- Viewing Enabled Switches
- Graphing Top *N* Active Hosts
- Graphing Traffic Between Hosts
- Graphing Call Failures
- Graphing a Broadcast Server Frame Analysis
- Disabling Data Collection

## Problem Solving

Table 24-12 displays problems that you might encounter while using the AtmDirector application and provides probable causes and possible solutions.

**Table 24-12 Troubleshooting Problems**

Problem	Probable Cause	Possible Solution
An end host cannot be discovered.	ILMI is not enabled.	Enable ILMI on the affected end host.
	No SNMP connection to the end host exists.	Set up the SNMP connection to the end host. Make sure that all device requirements are met.
The LEC does not appear in ELAN map.	Device where LEC resides is not SNMP reachable, or it was incapable of joining the ELAN.	Check to see if the LEC exists in the ELAN, and check to see if the device is SNMP reachable.
The LEC cannot join an ELAN.	The LEC was not discovered as a valid LEC.	Check to see if the device where the LEC resides is SNMP-reachable.
	The LEC was discovered at one time, but it went down and could not rejoin the ELAN.	Check the status of the LEC; make sure its address is configured correctly on the LightStream 1010.
		Check the last failure state of the LEC.
No connectivity exists between clients.	Clients belong to different ELANs.	Verify that both clients belong to the same ELAN.
	One client is unknown to the other.	Check the client ARP information to see if it is known to the LE client.
	Client(s) are not registered with the LES.	Check the LES status parameters window.
The BUS performance graph indicates high usage.	A client is using the maximum amount of bandwidth.	Determine which LEC is generating heavy broadcast usage. Check the TopN clients.

*Table 24-12 Troubleshooting Problems (continued)*

Problem	Probable Cause	Possible Solution
An unexpected volume of control frames is present.	Configuration is incorrect.	Check the menu item “Graphing Client Performance Information” to get information about the control frames and to change the configuration accordingly. For example, if the OUT ARP requests have a high volume, you probably need to change the ARP response time.
The device must be taken offline for maintenance purposes.	Possible effects will take place on ELANs.	Check the ATM-VLAN catalog from the fabric map to list all the ELAN components residing on a device.
The PNNI node does not appear on the topology map.	The PNNI node is not enabled.	Use CiscoView or the CLI to verify that the PNNI node (node index = 1) is enabled. Then select the LightStream 1010 switch that contains the node, and rediscover the device.
The PNNI node is isolated from the PNNI network.	The ANI server did not find a PNNI link for this node during the previous discovery cycle.	Select the PNNI node from the PNNI topology map. Then check to see if the level of the PNNI node is the same as the other nodes. Also check to see if any interfaces for this node are configured to PNNI.  <b>Note:</b> If the node level and interface information is correct, you need to rediscover the device. The PNNI link takes approximately 2 to 3 minutes to synchronize with the neighboring nodes, and the ANI server might not have found a PNNI link from this node in the previous discovery cycle.

## Troubleshooting TrafficDirector

In some cases, the TrafficDirector environment does not work as you would expect. This subsection includes tips for troubleshooting your TrafficDirector environment. It explains the following:

- The impact of security settings at both the TrafficDirector management console and the SwitchProbe device
- SwitchProbe and Network Analysis Module security, and the Properties file installation
- How to test the operational status of an agent on the network for agents, Frame Relay agents, and switches

## Ensuring Access to SwitchProbe Devices

Because the operations personnel who set up and configured your SwitchProbe devices may be different than the TrafficDirector administrator, a quick review of the implications of configuration settings at the SwitchProbe device can help you isolate possible problems.

Before the TrafficDirector application can access SwitchProbe data, the parameters must be properly set using the SwitchProbe agent configuration utility, including those special parameters required for tracking Frame Relay, ATM, and WAN statistics.

For more information, see the following sections:

- VLAN Monitor, SMON MIB, and ART MIB Options
- NetFlow and Resource Monitor Options—SwitchProbe Devices
- SwitchProbe and Network Analysis Module Security
- VLAN Monitor, SMON MIB, and ART MIB Options



**Note**

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The ARTMIB option is available only on SwitchProbe devices.

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Before the TrafficDirector application can access the proper data required in the VLAN Monitor or ART Monitor applications, you must verify that the VLAN option is enabled at the SwitchProbe device or Network Analysis Module to support VLAN Monitor, and that the ARTMIB option is enabled at the device to support ART Monitor.

## NetFlow and Resource Monitor Options—SwitchProbe Devices

Before the TrafficDirector application can reflect NetFlow and Resource Monitor activity, verify that the NetFlow option is enabled at the SwitchProbe device to support viewing of proxy SNMP and round-trip delay data (with Resource Manager only) and NetFlow statistics.

## NetFlow Option—Network Analysis Module

Before the TrafficDirector application can support viewing of NetFlow statistics on the Network Analysis Module, you must verify that the NetFlow option is enabled on the device.

## SwitchProbe and Network Analysis Module Security

To ensure that the TrafficDirector administrator has access privileges to the local console on the SwitchProbe device using the TrafficDirector Remote Login application, you must grant the optional administrative privileges (read and write access) to the TrafficDirector administrator.

User access privileges, if set at the SwitchProbe device, allow you to view the console settings but not to edit them. This user-level security setting is useful if you have multiple sites where operations personnel may be asked to track down but not necessarily fix a SwitchProbe agent problem.

If you do not know the administrative password at the SwitchProbe device and one is set, you cannot use the Remote Login application. These SwitchProbe security features are independent of the security options that you can enable for access to TrafficDirector administrator applications.

The following section contains more information.

## Properties File Installation

To ensure that properties files can be reinstalled automatically when SwitchProbe devices are rebooted, follow these steps:

- 
- Step 1** Use the default scripts to run `dvcfg` (either `startup` for most agents, or `fstartup` for Frame Relay agents).
  - Step 2** Set the SwitchProbe server address to the IP address of the TrafficDirector management station.
  - Step 3** Verify that the TrafficDirector `dvtrap` daemon is running.

If these conditions are met, you do not need to manually reinstall the properties files through the Configuration Manager.

## Network Access to SwitchProbe Devices

To test for network connectivity to the SwitchProbe device, use the Test Agents application. The test agent tool indicates whether an agent is operational and what options are supported, and it indicates the general health of the device's UDP/IP connection.

For more information about agent configuration issues, see the *Cisco SwitchProbe Installation and Configuration Guide*.

## Testing Agents, Switches, and Frame Relay Agents

**Note**

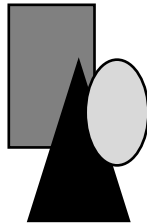
---

The Test Agent feature does not update the SPAN port information under Roving Information when the SPAN port is set on the switch through the command line. It will always reflect the information about the port that was roved from the TrafficDirector application and is not updated. To test an agent, Frame Relay agent, or switch, follow these steps:

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- 
- Step 1** Select the agent you want to test from the agent list box, either from the TrafficDirector main window or from Configuration Manager.
  - Step 2** Do *one* of the following:
    - In the TrafficDirector main window, click the Test Agent icon.
    - In Configuration Manager, click Test.

If the agent is operational, the Agent Test window opens (see Figure 24-3).

*Figure 24-3 Agent Test Window*

## Interpreting Test Agent Messages

When a test is successful, the information in Table 24-13 is displayed. When you have finished viewing the information, click OK to close the Agent Test window.

*Table 24-13 Information Displayed Upon Successful Agent Test*

Field	Description
IP Address	IP address of the agent management interface.
Ping	The ping (query) result: <b>Passed</b> —The connection is fully operational. <b>Not Supported</b> —The connection is fully operational but is not supported by the Resource Monitor option.
Read Community	The agent read community name (as entered in the Configuration Manager application), and whether this name is the same as the agent's established read community name (OK) or is not (Failed).
Write Community	The agent write community name (as entered in the Configuration Manager application), and whether this name is the same as the agent's established write community name (OK) or is not (Failed).
Protocol Monitoring	Whether the agent supports RMON2 network layer protocol monitoring.
Application Monitoring	Whether the agent supports RMON2 application layer protocol monitoring.
High Capacity Monitoring	Whether the agent supports HCRMON as a high-speed device.
VLAN Monitoring	Whether the VLAN Monitor option is enabled in the agent.
Application Response Time	Whether the ARTMIB option is enabled in the agent.
Resource Monitoring	Whether Resource Monitor is enabled in the agent. Resource Monitor is required to configure RT delays and proxy SNMP gets.
Interface Number	The number of the agent interface used to monitor activity on a network segment.



**Table 24-13 Information Displayed Upon Successful Agent Test (continued)**

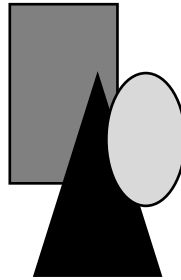
Field	Description
Description	The media type of the interface specified in the Interface Number field.
Interface Type	The type of interface distinguished according to the physical link protocol, as described in RFC 1213.
Physical Address	The MAC address of the agent.
Number of Interfaces	The number of network interfaces on the agent.
Net Speed	The estimated bandwidth for the current interface in bits per second (bps).
DTE Speed	The estimated DTE circuit speed (in bps). Full-duplex links only.
DCE Speed	The estimated DCE circuit speed (in bps). Full-duplex links only.
Description	The device model, as defined by the network administrator.
Contact	The name of the person responsible for the agent, and how to contact that person.
SysName	The administratively assigned name of the agent.
Location	The physical location of the agent, as defined by the system administrator in the Configuration Manager.
UpSince	The date and time that the agent became operational on the network. Also, when the agent was last booted.

## Interpreting Switch Agent Test Messages

The test information that is generated when communicating with a switch is slightly different from the information generated when you test an agent.

When you test a switch, the TrafficDirector software queries the switch and informs you if the query passed or failed. Figure 24-4 shows the Switch Test window.

Figure 24-4 Switch Test Window



When a test is successful, the information in Table 24-14 is displayed.

Table 24-14 Information Displayed Upon Successful Switch Test

Field	Description
IP Address	IP address of the switch management interface.
Ping	The ping (query) result: <b>Passed</b> —The connection is fully operational. <b>Not Supported</b> —The connection is fully operational but is not supported by the Resource Monitor option.
Read Community	The switch read community name (as entered in the Configuration Manager application), and whether this name is the same as the agent's established read community name (OK) or is not (Failed).
Write Community	The switch write community name (as entered in the Configuration Manager application), and whether this name is the same as the agent's established write community name (OK) or is not (Failed).
IP Address	The IP address of the switch's management interface.
Description	The device model, as defined by the network administrator.
Contact	The name of the person responsible for the switch, and how to contact that person.
SysName	The system name for the switch.
Location	The physical location of the switch, as described by the system administrator in the Configuration Manager.
UpSince	The date and time that the switch became operational on the network. Also, when the switch was last booted.
Roving Agent	The name of the roving agent defined for the switch, if any.
Analyzer Port	The name of the switch port that the roving agent is physically connected to, if applicable.
Monitor Port	The currently roved port, if any. The monitor port contains the name of the switch port that the roving agent is currently monitoring.

You receive the same message as an agent or Frame Relay agent, if the test failed.

## Troubleshooting CiscoView

This subsection provides the following information on how to troubleshoot any problems that you might encounter when using CiscoView application and how to identify device problems using CiscoView.

### The Cvinstall.cshrc and the Cvinstall.sh Files and System Performance Issue

The CVinstall.cshrc and the CVinstall.sh files automatically set all environmental variables required for CiscoView. If there are errors starting CiscoView, source one of these files.

CiscoView opens each device in a separate window, by default. On large networks, this can consume too much RAM and slow performance. To decrease RAM use, you can open devices in the same window by changing operating characteristics. Select Options; Properties. Choose Same Window in the Launch CiscoView In option.

Also, multiple sessions of CiscoView might degrade system performance because of the use of X resources. Reduce the number of sessions running on an X server by selecting the option Same Window in Options; Properties. This causes successive invocations of CiscoView on an X server to reuse a single session.

### Fixing Display Problems

If CiscoView fails to display a device, the following message appears:

**“<hostname>: unmanageable”**

This message suggests one of the following conditions:

- The SNMP agent is not running on the device, although the device is accessible from the management session.
  - You should be able to **ping** the device from the management session.
- You entered an incorrect community string.
  - To re-enter a community string, select Options; Properties.
- The management station cannot reach and successfully **ping** the device.
  - Check your device package and compare the date with the CCO device package version. Upgrade your device package to the latest version, if required.
- You encountered an unsupported card error.
  - CiscoView displays the “Unsupported Card” or “Unknown Card” error messages instead of displaying the contents of the card when a device package does not support the card. You might have to contact CCO and check the upgrade planner for the device package. If the device package is supposed to support the card, try upgrading the device package to the latest version from CCO.
- You received the error message: “Can’t read DD(...) not set.”
  - CiscoView generates this error message when any of the following conditions are true:
    - The IOS version is not supported by the device package.
    - The physical device might not contain a card component, or it might not have been configured properly.
    - The IOS may not have the feature that supports the card. In this case, you might have to upgrade the IOS to the proper version.

- There is a problem with the device package.

For the previous conditions, check whether the device package supports the IOS version of the device under consideration. Upgrade the IOS/switch version.

- CiscoView rolls back after a device package installation or deinstallation.
  - When a device package is installed, CiscoView runs a static check utility (cvtest) on all existing device packages to determine if installation or deinstallation destabilized CiscoView.

There are two possible reasons why the device package may roll back:

A package was installed without the requisite installation of a dependent device package. For example, the 3600 package needs to be installed before installation of the AS5800, and the CPW1420.pkg requires installation of the Cat2820.



**Note** If you encounter this problem during incremental installations, check the list of installed packages and verify that all dependent packages are installed.

The device package's installation did not pass the static check utility. Contact the Cisco TAC with the following file: \$NMSROOT/CVinstall.log.

- List the packages installed on the system and their version numbers. Note the name of the device package that failed and its version number.

## Identifying Device Problems (Dashboard Monitor)

Perform any of the following tasks in CiscoView to isolate the cause of a problem:

- Check the color-coded legend to determine the status of a port.
- Check the port configuration information and determine that the port is active. (See the menu item “Displaying Configuration”).
- Check the performance information by examining the dashboard display.
- Check the utilization and error information for ports and the memory information for a device.
- Check the status bar for SNMP or other error messages.

## Interpreting SNMP Error Messages

CiscoView displays the following SNMP error messages, shown in Table 24-15, resulting from failed command requests in the status bar message area:

**Table 24-15 SNMP Error Messages**

Message	Explanation
timeout	You can no longer reach the device in the time specified in the CiscoView Properties window.
tooBig	The request that you made cannot fit into a single packet. Generally, CiscoView splits requests for physical view status until the device can respond. In certain cases, CiscoView assumes that if an agent times out on 20 or more variables, the agent might not be capable of responding because the request is too big; it splits the request and resends it. Check that the MTU size on the SNMP interface is as large as possible so that CiscoView does not waste bandwidth by sending more than one request.
genErr	This is a collective message name for problems that do not have a unique error message.
noSuchName	A request for a variable was sent to an inaccessible variable. This occurs if you are not using the correct community string.
badValue	The agent did not respond within the time interval specified by the timeout/retries field in the CiscoView Properties window. This can also indicate the use of an incorrect community string.  While performing a set operation on a MIB object, the value specified for writing does not follow the proper syntax for the MIB object. It could be because of type mismatches or out-of-range values.

## Before Calling Cisco Systems' TAC Team

Before calling Cisco Systems's Technical Assistance Center (TAC), make sure that you have read through this chapter and completed the actions suggested for your system or application's problem.

Additionally, do the following and document the results so that we can better assist you. Please be prepared to provide the following information:

- What version of CiscoWorks 2000 it is (RME2.2/CWSI2.4, RME2.1/CWSI2.3, RME2.0/CWSI2.2, or so on)
- What type of operating system platform it is on (Windows NT4.0, Solaris 2.5.1/2.6, HP-UX 10.20/11.0, IBM AIX 4.2.1/4.3.2)
- System hardware information: CPU model and speed, available RAM, available hard drive space
- If your problem is with a web-based application (such as RME), the browser type and version information
- What type of operation is failing/giving the message

What the exact error message is, and a description of the problem behavior or the error message text

- What type of device you are applying the operation to
- The IOS version or switch software version

- An explanation about how to reproduce the problem

## Additional Sources

The following books have information in both hard-copy and online copy on CCO:

- *Addendum: Using the Campus TrafficDirector Application*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/sw\\_ntman/td\\_main/td\\_5\\_7/td57add.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/sw_ntman/td_main/td_5_7/td57add.htm)
- *Getting Started with CiscoView 4.2(1)*—<http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cvparnt/cview/cvovr42/index.htm>
- *Getting Started with CWSI Campus*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/gsg\\_cwsi/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/gsg_cwsi/index.htm)
- *Getting Started with Resource Manager Essentials*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000e/e\\_2\\_x/rm\\_2\\_0/rme\\_gs/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000e/e_2_x/rm_2_0/rme_gs/index.htm)
- *Installing Resource Manager Essentials/CWSI Campus on AIX*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_3/mgr\\_aix/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_3/mgr_aix/index.htm)
- *Installing Resource Manager Essentials/CWSI Campus on HP-UX*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_3/mgr\\_hpux/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_3/mgr_hpux/index.htm)
- *Installing Resource Manager Essentials/CWSI Campus on Solaris*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_3/mgr\\_sol/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_3/mgr_sol/index.htm)
- *Installing Resource Manager Essentials/CWSI Campus on Windows*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_4/mgr\\_win/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_4/mgr_win/index.htm)
- *Release Notes for Resource Manager Essentials 2.2/CWSI Campus 2.4*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_4/relnt2\\_3/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_4/relnt2_3/index.htm)
- *Supported Devices for CWSI Campus 2.4*—[http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/c2\\_4.htm](http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/c2_4.htm)
- *Supported Devices in Essentials 2.1/2.2*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000e/dev\\_sup/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000e/dev_sup/index.htm)
- *Using the Campus AtmDirector Application*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/atmd\\_c/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/atmd_c/index.htm)
- *Using the Campus TrafficDirector Application*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/sw\\_ntman/td\\_main/td\\_5\\_6/traf5\\_6/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/sw_ntman/td_main/td_5_6/traf5_6/index.htm)

- *Using the Campus UserTracking Application*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/us\\_c/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/us_c/index.htm)
- *Using the Campus VlanDirector Application*—[http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp\\_mgr/cwsi\\_2x/cwsi\\_2\\_2/vd\\_c/index.htm](http://cio.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/camp_mgr/cwsi_2x/cwsi_2_2/vd_c/index.htm)

