CHAPTER 4

Validating CiscoWorks Installation

Validation is the process of configuring and testing installed software for proper operation.

Validation Process Overview

To make CiscoWorks operational, you perform the following tasks:

1. Define environment variables and search paths by editing the *.cshrc* or *.kshrc* file.
2. Configure Trivial File Transfer Protocol (TFTP) so that CiscoWorks can exchange configuration files and software images with Simple Network Management Protocol (SNMP) devices on the network.
3. Verify the integration of CiscoWorks applications into NetView for AIX.
4. Customize CiscoWorks, such as colors and fonts (optional).
5. Use SMIT to display and control the CiscoWorks daemons and Sybase 10 dataserver (if necessary).

Defining Environment Variables and Search Paths

To use NetView for AIX, CiscoWorks, and Sybase, you must define the appropriate environment variables and paths in your *.cshrc* or *.kshrc* file. The environment variables and paths are explained in Table 4-1.

Table 4-1 Environment Variables

Environment Variable	Explanation
NMSROOT	Refers to the directory */usr/nms* where the CiscoWorks software is installed.
SYBASE	Refers to the directory path where Sybase is located. The default is *$NMSROOT/sybase10*, which usually equates to */usr/nms/sybase10*
LANG	Must be *En_US*.
HHHOME	Refers to the directory where online help is stored. Must be *$NMSROOT/help*.
HHPATH	Refers to the directory where the hypertext help program resides. Must be *$NMSROOT/hyperhelp/bin*.
PATH	Must include the directories */usr/OV/bin*, *$NMSROOT/bin*, *$NMSROOT/etc*, and *$SYBASE/bin* (the directories for NetView for AIX, CiscoWorks, and Sybase).
MANPATH	Refers to the directory path for finding man pages. It should include *$NMSROOT/man*.

Environment Variable	Explanation
DISPLAY	Refers to the X11 display with which CiscoWorks operates. The default is *:0* or *hostname:0.0*
DSQUERY	Refers to the Sybase data server to be used. The default is *CW_SYBASE*.
CW_POLLDB	Refers to the default CiscoWorks polling database name *polldb*.
CW_NMSDB	Refers to the default CiscoWorks network management database *nms*.
BACKUP_SERVER_NAME	Refers to the default Sybase backup server *CW_BACKUP_SERVER*.
BACKUP_SERVER_HOME	Refers to the default directory of the backup server, *$NMSROOT/sybase10/install*.
ESQRDIR	Refers to the default directory of the Easy SQL Report generator (Sybase ESQR), */usr/nms/bin*.
VVTERM	Enables Sybase ESQR to operate. The default is *xterm*.
VVTERMCAP	Enables Sybase ESQR to operate. The default is */usr/nms/bin/vvtermcap*.

Editing the .kshrc or .kshrc Files

Because the environment variables set in a user's *.kshrc* or *.cshrc* file apply to that user only, the *.cshrc* or *.kshrc* file of every CiscoWorks user must be modified to include the variables in Table 4-1. The following steps describe a method of concatenating a script of commands from the */usr/nms/install* directory to each *.cshrc* or *.kshrc* file. When executed in the *.cshrc* or *.kshrc* file, the commands establish all required environment variables and paths for the user.

Step 1 Log in as the root user.

For details, see "Becoming the Root User" in the chapter "Preparing to Install CiscoWorks."

Step 2 Determine the shell each CiscoWorks user is using by entering a command like the following. The following command is for user *william*.:

```
hostname# cd /users/william
hostname# ls .kshrc .cshrc
```

For the K shell, AIX responds

```
.kshrc
```

For the C shell, AIX responds

```
.cshrc
```

Step 3 For a user using the K shell, append */usr/nms/install/install.kshrc* to the end of the *.kshrc* file by entering

```
hostname# cat /usr/nms/install/install.kshrc >> .kshrc
```

For a user using the C shell, append */usr/nms/install/install.cshrc* to the end of the *.cshrc* file by entering

```
hostname# cat /usr/nms/install/install.cshrc >> .cshrc
```

Step 4 Verify that lines were added to the *.kshrc* or *.cshrc* file:

```
hostname# cat .kshrc
#---Environment variables for NetView, CiscoWorks, and Sybase---##
(more lines here)
```

or

```
hostname# cat .cshrc
#---Environment variables for NetView, CiscoWorks, and Sybase---##
(more lines here)
```

Step 5 For a user using the C shell, enter the following command to ensure that the changes made to the *.cshrc* file become a part of the user's active environment:

```
hostname% source .cshrc
```

For a user using the K shell, enter the following command to ensure that the changes made to the *.kshrc* file become a part of the user's active environment.

```
hostname% . .kshrc
```

Step 6 Verify that the changes to the *.cshrc* or *.kshrc* file are active by viewing all active environment variables.

For the C shell, type

```
hostname% printenv | more
```

For the K shell, type

```
hostname% set | more
```

Note that the environment variables for NMSROOT and SYBASE are displayed. In addition, the paths are defined for CiscoWorks and Sybase executables and the CiscoWorks man pages, as well as other system variables.

Note Individual users can edit their own *.cshrc* or *.kshrc* files by logging in with their user IDs and following the previous steps.

Configuring TFTP for Device Configuration Management

Several CiscoWorks applications exchange configuration files and software images with Simple Network Management Protocol (SNMP) devices on the network by means of the Trivial File Transfer Protocol (TFTP). For TFTP to operate, you must perform the following steps:

- Create the TFTP boot directory (optional but recommended).
- Enable the TFTP daemon.
- Verify the TFTP daemon.

A *daemon* is a process that performs a specific background function on behalf of an application.

Creating the TFTP Boot Directory

Create a TFTP boot directory in which device configuration files will be stored. This task is optional because the directory will be accessible to all users and is a security hole. Without the boot directory, you are unable to use the following CiscoWorks applications: AutoInstall Manager, Configuration Management, and the Device Software Manager. Therefore, creation of the boot directory is *recommended*.

Note If you want to use the CiscoWorks Software Library Manager or Device Software Manager application to manage device software, you must allocate at least 4 MB of space to the TFTP boot partition.

To create the TFTP boot directory, make sure you are logged in as the root user and perform the following steps:

Step 1 If the TFTP boot directory does not exist, enter the following to create it:

```
hostname# mkdir /tftpboot
```

Step 2 The TFTP boot directory must have the appropriate permissions. Modify the permissions with the following command:

```
hostname# chmod 777 /tftpboot
```

As a result, all users of the TFTP boot directory will have read, write, and execute permissions.

Enabling and Verifying the TFTP Daemon

TFTP enables transfer of files between the following CiscoWorks applications and SNMP-enabled network devices: Configuration Management, AutoInstall Manager, Software Library Manager, Device Software Manager, and Configuration Snap-In Manager. For those applications to operate, the TFTP daemon must operate.

Use the System Management Interface Tool (SMIT) to enable the TFTP daemon. For additional information on TFTP, refer to the AIX man pages on the **tftp** and **tftpd** commands. Enable and verify the TFTP daemon by completing the following steps:

Step 1 Log in as the root user. Refer to the section “Becoming the Root User” in the chapter “Preparing to Install CiscoWorks.”

Step 2 Start SMIT by entering the following at the command prompt:

```
hostname# smit
```

Step 3 On the main SMIT menu, click **Communications Applications and Services**.

Step 4 Click **TCP/IP**.

Step 5 Click **Further Configuration**.

Step 6 Click **Server Network Services**.

Step 7 Click **Other Available Services**.

Step 8 Click **Super Daemon (inetd)**.

Step 9 Click **inetd Subservers**.

Step 10 Click **Change/Show Characteristics of an inetd Subserver**.

Step 11 From the Single Select List window that appears, click **tftp**.

Step 12 Add **-d /tftpboot** to the entry displayed in the Service Program Command Line ARGUMENTS field.

Step 13 Click **Do**.

When the process completes successfully, the animated man raises his arms.

Step 14 Click **Done**.

The TFTP daemon is now enabled.

Step 15 Terminate SMIT by pressing **F12** or by clicking **Exit SMIT** on the Exit menu.

Step 16 Verify that the TFTP daemon is enabled by entering the following at the command prompt:

```
hostname# grep tftp /etc/inetd.conf
```

If the daemon is enabled, output similar to the following appears:

```
tftp dgram udp wait nobody /etc/tftpd tftpd -n -d /tftpboot
```

Verifying the Integration of CiscoWorks into NetView

After proper installation and configuration, CiscoWorks applications are integrated into the structure of NetView for AIX. To verify the CiscoWorks installation and configuration, access NetView for AIX and display the menu of CiscoWorks applications as follows:

Step 1 Enter the following command at the command prompt to start NetView for AIX:

```
hostname% nv6000
```

The NetView for AIX default network map, Root, appears; Root displays all devices running the Internet Protocol (IP), including Cisco devices.

Step 2 Display CiscoWorks menu items under the following NetView for AIX menus according to Table 4-2.

Table 4-2 CiscoWorks Applications under NetView for AIX

NetView for AIX Menu	CiscoWorks Application	CiscoWorks Application Enabled When
Monitor	Description: Contacts	One Cisco device is selected on the network map.
	CW - Health Monitor...	One Cisco device is selected on the network map.
	CW - Environmental Monitor...	On the network map, one Cisco device is selected that contains an Environmental Monitor Card.
	CW - Real-Time Graphs...	One Cisco device is selected on the network map.
	CW - Device Polling...	Always enabled.
	CW - Polling Summary...	Always enabled.
	Workgroup Director	One Cisco device is selected on the network map.
Administer> CW - System	Process Mgr...	Always enabled.
	Global Command Mgr...	Always enabled.
	Global Command Scheduler...	Always enabled.
Administer> CW - Devices	Device Mgmt...	Always enabled.
	Configuration Mgr...	Always enabled.
	Configuration Snap-In Mgr...	Always enabled.
	AutoInstall Mgr...	Always enabled.
Administer> CW - Software Images	Software Library Mgr...	On the network map, one Cisco device is selected that contains Flash memory.
	Software Inventory Mgr...	Always enabled.
	Device Software Mgr...	On the network map, one Cisco device is selected that contains Flash memory.
Administer> CW - Security	SA Password...	Always enabled.
	Security Mgr...	Always enabled.
	Domain Mgr...	Always enabled.
	TACACS Mgr...	Always enabled.
Diagnose	Network Conn.> CW - Path Tool	Always enabled.
	CW - Show Commands...	One Cisco device is selected on the network map.
Misc	Sync w/Sybase...	Always enabled.
	Sync Selected...	One or more Cisco devices are selected on the network map.
	CW - Login...	Always enabled.
	CW - Logout...	Always enabled.
	CW - ToolBox	Always enabled.
	Sybase ESQR...	One Cisco device is selected on the network map.

If no CiscoWorks applications are visible under the NetView for AIX menus, the installation might have been unsuccessful. Look for the *CiscoWorks* file in the */usr/OV/registration/C* directory. If the file is not there, contact a TAC representative.

After verifying that CiscoWorks applications appear in the NetView for AIX menus, see "Customizing CiscoWorks 3.0" which immediately follows, or go straight to the chapter "CiscoWorks Getting Started."

Customizing CiscoWorks 3.0

Customizing CiscoWorks 3.0 is optional and can be done now or at any time in the future.

Updating the XKeysymDB File

CiscoWorks 3.0 is based on the OSF/Motif windowing system and requires Motif key mapping. If necessary, you can also manually update the *XKeysymDB* file by appending *$NMSROOT/etc/XKeysymDB* to your *XKeysymDB* file.

Modifying Your .Xdefaults File

Some operations of CiscoWorks and NetView for AIX are determined by X Windows. You can customize the way you work with CiscoWorks on NetView for AIX by modifying your *.Xdefaults* file. For example, you can change the colors that NetView for AIX displays by changing your X Windows environment. (Refer to your IBM documentation for instructions.) Or, you can specify certain ways in which CiscoWorks runs in your X Windows environment.

This section provides information on the following topics:

- Customizing CiscoWorks Colors and Fonts
- Editing the .Xdefaults File to Specify the Text Editor
- Resetting the Default Window Size of CiscoWorks Applications

Customizing CiscoWorks Colors and Fonts

All X Windows resources used by CiscoWorks applications can be customized, including colors and fonts. By overwriting the default resources used in CiscoWorks, you can customize the colors and fonts to meet your needs. To use your own colors and fonts for CiscoWorks, perform one of the following procedures:

- Store your resources in the */usr/lib/X11/app-defaults/XCiscoWorks* file.
- Rename your resource file to *$HOME/XCiscoWorks.*
- Store your resources in the *$HOME/.Xdefaults* file.
- Start your CiscoWorks applications with your specified resource options (such as **-font 9x15bold**).

Refer to your AIX documentation for details.

Editing the .Xdefaults File to Specify the Text Editor

Defining the look of your text editor window requires that you add the following command to the *.Xdefaults* file, substituting the appropriate options:

Step 1 Confirm that X Windows is running by starting an X window:

```
hostname% startx
```

Step 2 Using your text editor, open your **.***Xdefaults* file. The *.Xdefaults* file is usually stored in your home directory. For example, if you are using *vi* as your text editor, enter the following command:

```
hostname% vi $HOME/.Xdefaults
```

Step 3 Add the following command to the **.***Xdefaults* file:

```
* EditorFormat:command string %s
```

Similarly, to specify the emacs editor in */usr/local/bin*, add the following line to the *.Xdefaults* file:

```
* EditorFormat:/usr/local/bin/emacs %s
```

Enabling Boot File Generation

When a configuration file is loaded from the database to a device, an image of the loaded configuration file can be saved in the TFTP boot file in the */tftpboot* directory. If the device is down, you can still retrieve the image of the configuration file from the TFTP boot directory that is defined in the */etc/inetd.conf* file (usually */tftpboot*). The TFTP boot directory, however, may not provide a secure storage location because almost all users can access this directory. Therefore, you may want the boot file generation feature to be turned off.

By default, CiscoWorks does not enable the boot file generation feature in the TFTP boot directory. To activate it, use a text editor to modify the *.Xdefaults* file.

Step 1 Add the following line and save changes to the *.Xdefaults* file in your home directory.

```
*Bootfile:on
```

Step 2 To write over the existing information in the **.***Xdefaults* file, type the following command at the AIX command line:

```
# xrdb -merge $HOME/.Xdefaults
```

Resetting the Default Window Size of CiscoWorks Applications

When working with CiscoWorks applications, you may notice that the window sizes may vary from application to application. The layout of the window and the size of its text and graphics is preset to be large enough to contain all the elements that define the window. However, you can resize the window without obscuring the text.

To reset the default CiscoWorks window size, perform the following steps:

Step 1 Use a text editor such as *vi* to add the following line to your *$HOME/XCiscoWorks* file:

```
"XCiscoWorks*geometry: 500x400+0+0"
```

Step 2 Enter the following command:

```
hostname% xrdb -merge < ~/XCiscoWorks
```

The next time you run CiscoWorks, the window size will be the default.

Viewing CiscoWorks Daemons and the Sybase 10 Dataserver

Perform these steps only when you suspect a problem with the operation of the CiscoWorks applications.

A *daemon* is a process that performs a specific background function on behalf of an application. CiscoWorks 3.0 has several daemons. SMIT offers control of the following CiscoWorks 3.0 daemon processes:

- Log daemon
- Polling daemon
- Event Logger daemon
- Syslog daemon
- TACACS Authentication Server daemon
- Sybase 10 Server daemon

Perform the following steps to display the status of, start, or stop CiscoWorks daemons:

Step 1 Log in as the root user.

For details, see “Becoming the Root User” in the chapter “Preparing to Install CiscoWorks.”

Step 1 Start SMIT:

```
hostname# smit
```

Step 2 On the initial SMIT menu, click **Communications Applications and Services**.

Step 3 On the next menu, click **Cisco Network Management Applications for AIX**.

Step 4 On the next menu, click **CiscoWorks 3.0**.

Step 5 On the CiscoWorks 3.0 menu, click **Control**. The Control menu appears.

Step 6 Click any *one* of the following buttons:

- **Display CiscoWorks 3.0 daemon status**—To find out whether each of the daemons are running
- **Restart all CiscoWorks 3.0 daemons**—Always stop the daemons before restarting them.

- **Stop all Running CiscoWorks 3.0 daemons**—Before restarting the daemons.
- **Start / Stop / Status Sybase 10 dataserver for CiscoWorks**—To access a dialog that lets you display the status of, stop, or start the Sybase 10 dataserver.

  When you attempt to stop the dataserver, SMIT prompts you for the Sybase system administrator's password, which is *sybasesa* until you log directly onto the Sybase server and change it.

When you press the **Display**, **Restart**, or **Stop** button, SMIT performs the requested action and presents a separate screen to display the results. To dismiss the results screen, click **Done** and you return to the Daemon Control dialog.

Step 7 Terminate SMIT by pressing **F12** or by clicking **Exit SMIT** on the Exit menu.