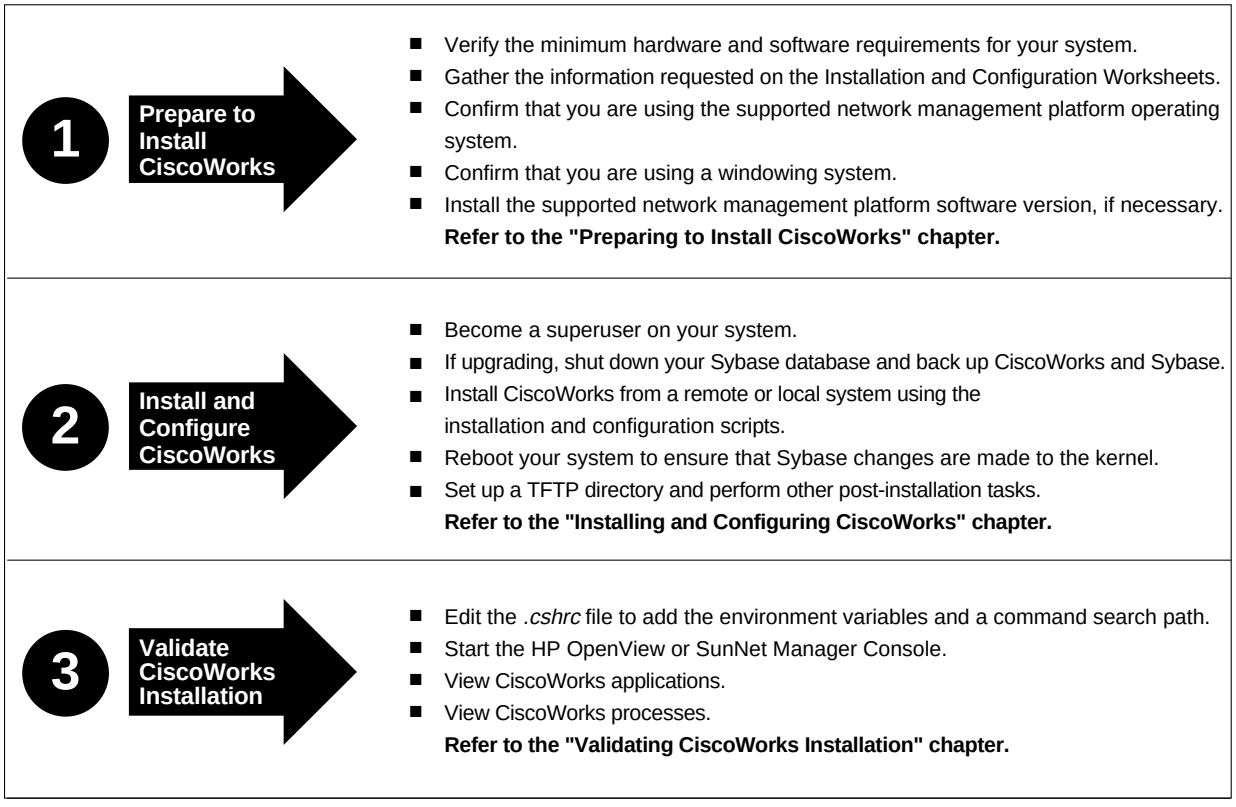
CHAPTER 2

Preparing to Install CiscoWorks

This chapter describes preparatory information for installing and configuring CiscoWorks. Included are worksheets to help you gather the necessary information.

Figure 2-1 provides an overview of the installation process, including preparation, installation, configuration, and validation.

Figure 2-1 Installation Roadmap



Before you install the CiscoWorks network management software, confirm that your computer system meets the related hardware and software-version requirements. In addition, you should note any special requirements about how you want CiscoWorks installed. For example, CiscoWorks prompts you during installation to supply information such as where you want CiscoWorks installed and whether you are performing an upgrade or new installation.

Timesaver If you do not have any special requirements, you can press **Return** to accept a default selection.

To gather all the information you need to install CiscoWorks, first complete the Installation Worksheet. You can then refer to the worksheet, if necessary, as you proceed with the installation.

Process Overview for Preparing to Install or Upgrade

Follow these basic steps to prepare to upgrade from a previous release of CiscoWorks, or to install and configure CiscoWorks for the first time.

1. Verify that your system meets the minimum hardware and software requirements for CiscoWorks. (Refer to the "Verifying Your System Requirements" section, later in this chapter.)
2. Gather information required for installation and configuration by filling in the Installation and Configuration Worksheets. (Refer to the "Gathering Information for Installation and Configuration" section later in this chapter.)

   For HPUX 10.x, refer to the section "Migration from HPUX 9.x to HPUX 10.x" in the "Installing and Configuring CiscoWorks" chapter.
3. If you are using a SunOS system, upgrade your SunOS to Version 4.1.3. If you are using a Solaris system, upgrade your Solaris to Version 2.4. If you are using an HP system, upgrade your HP-UX to Version A.09.03, A.09.04, B.09.05, or A.10.01. (Refer to the "Verifying Your System Requirements" section, later in this chapter.)
4. Install the supported version of network management platform software, if required. For details on supported network management platform versions, refer to Table 2-2. For HPUX 10.x, HPOV 4.0 is the supported platform.
5. Verify that the correct version of network management platform is installed on your system by starting the software with the sample database file created during installation. Test the network management platform installation by starting a request to an agent on your local machine. Using the SunNet Manager (SNM) Quick Dump option, perform a Quick Dump on an agent on your machine to ensure that the agent is responding. For instructions on verifying HP OpenView installation, refer to the HP OpenView manual set.
6. If you plan to use CiscoConnect, make sure you follow the requirements in the "CiscoConnect Software Requirements" section, later in this chapter.
7. If you are upgrading from a previous release of CiscoWorks, back up your old NMS database before you upgrade.

You are now ready to install and configure CiscoWorks on your system.

Upgrade Information

For SunOS, the following upgrade paths to Sybase 10 and CiscoWorks 3.0 are supported for this release:

- Sybase 4.9 with CiscoWorks 2.x—This is the most common upgrade. Your system does not have any version other than Sybase 4.9 installed.
- Sybase 10 and CiscoWorks 2.x /Sybase 4.9—If you are running Sybase 10 with other software on the same system running CiscoWorks and Sybase 4.9.
- Sybase 4.9 and no CiscoWorks—If you are running Sybase 4.9 with other software, but do not have CiscoWorks software.
- Sybase 10 and no CiscoWorks—If you are running Sybase 10 with other software, but do not have CiscoWorks software.
- Customer with beta version of Sybase 10 with CiscoWorks—If you were a Cisco beta site for the CiscoWorks/Sybase 10 release.

Note For Solaris 2.4 and HPUX 10.x, there is no upgrade path to Sybase 10 and CiscoWorks 3.0. This is a new installation.

You must use the UNIX backup commands to back up the following directory and files: */usr/nms*, */etc/passwd*, */etc/tacpasswd*, */etc/group*, and */var/log/nmslog.* Other files you may want to back up include any of the following types of files you created to support CiscoWorks: cron files, specific UNIX commands, and scheduled UNIX commands. If these files are not backed up, they will automatically be lost during the upgrade. You can reinstall these files from your backup disk after installation.

Verifying Your System Requirements

Table 2-1 lists the hardware and software requirements for your system. You need one of the following systems to run CiscoWorks:

- Sun SPARCstation 2, 10, or 20
- Hewlett-Packard 9000 system, series 700 or 800

Table 2-1 General System Requirements for CiscoWorks

Operating System	Free Hard Disk Space	RAM	Swap Space	Free Root Partition
Sun OS 4.1.3 (Solaris 1.X) or 4.1.4	1,000 MB (recommended)	64 MB	128 MB (minimum)	5 MB
HP-UX A.09.03 or HP-UX A.09.04 or HP-UX A.09.05 or HP-UX B.10.01	1,000 MB (recommended)	64 MB	128 MB (minimum)	5 MB
Solaris 2.4 (SunOS 5.4)	1,000 MB (recommended)	64 MB	128 MB (minimum)	5 MB

The minimum swap space requirement (128 MB) is suitable for managing small networks. For managing more than 75 to 100 devices, Cisco recommends more RAM and swap space.

The memory and swap space requirements depend on such factors as which applications you run, the number of applications you run concurrently, and the number of network devices that you manage with CiscoWorks. You may need to increase the swap space beyond the general minimum requirements, depending on your particular network management needs.

Table 2-2 provides additional information on your system requirements for CiscoWorks and other software.

Table 2-2 Hard Disk Space Requirements

Software	Minimum Hard Disk Space Requirements
CiscoWorks, Version 3.0	150 MB
Sybase (provided with CiscoWorks), Version 10.0.2	37 MB for Sun 56 MB for HP-UX
SunNet Manager, Version 2.2.2	10 MB
HP OpenView, Version 3.3 or later (HP Open View, Version 4.0 only for HPUX 10.x)	65 MB
Sybase tables storage	85 MB total (nmsdb, 25 MB; polldb, 60 MB)
Total disk space (values are rounded up for improved performance)	250 MB[1] (minimum) 300 MB or more (recommended)

1. CiscoWorks software must be installed in a single disk partition that contains at least 250 MB.

Table 2-3 lists the random access memory (RAM) requirements for your system.

Table 2-3 RAM Requirements

CiscoWorks Software and Applications	RAM Requirements
CiscoWorks[1] software	18 MB
CiscoWorks applications[2]	14 MB
Total RAM for CiscoWorks software and all CiscoWorks applications	32 MB (minimum)[3] 64 MB (recommended)
Total swap space	128 MB (recommended)

1. Includes the RAM requirements for HP OpenView or SNM, nmpolld processes in CiscoWorks, Sybase dataserver, and shared libraries.
2. Approximately 14 MB of RAM enables you to simultaneously run a minimum of seven CiscoWorks applications. If you plan to run more than seven applications at the same time, you may need to increase the RAM, depending on the application and the activity performed.
3. The value of 32 MB is the bare minimum. Cisco recommends upgrading RAM to 64 MB.

Additional Hardware Requirements

In addition to the general system requirements, CiscoWorks requires the following hardware:

- Hard disk space. SunNet Manager software is in the */usr/snm* directory for SunOS and */opt/SUNWconn/snm* directory for Solaris, unless you installed it in a different directory. The HP OpenView software on SunOS is in the */usr/OV* directory or */opt/OV* for HPUX 10.x, unless you installed it in a different directory. Both NMS databases recommend 10 to 15 MB of disk space for the initial database directory to allow enough space for the growth of log files. If the log files require more hard disk space, you can change the location of the database directory. For detailed information on the hard disk space requirements and on changing the location of the database directory, refer to your NMS documentation.
- Color monitor.
- CD-ROM drive (local to the NMS system or available remotely across a network).
- PostScript-compatible printer (to print snapshot images and online help pages).

Additional Software Requirements to Use CiscoWorks Applications

In addition to the general operating system requirements, CiscoWorks applications have specific Cisco Systems system software requirements. Table 2-4 lists the CiscoWorks application requirements. For more up-to-date information, refer to the *CiscoWorks Release Notes* shipped with the product or on UniverCD.

Table 2-4 CiscoWorks Application Software or Hardware Requirements

CiscoWorks Application	Hardware or Software Requirement	Cisco Devices Supported
AutoInstall Manager	Neighbor router running 8.3 or later New router running Cisco IOS Release 9.1 (7) or later	Any Cisco device running Cisco IOS Release 9.1 (7) or later.
CiscoConnect	Sendmail daemon. For more information, refer to the section "CiscoConnect Software Requirements."	
CiscoView	Cisco 4000/4500 with 9.21 or later Cisco 2505 and 2507 with 10.0(6) or later Cisco 25xx (2501, 2502, 2503, 2504, 2509, 2511, 2512, 2513, 2514, and 2515) with 10.2(1.3) or later Cisco 7000 and 7010 with 9.21 or later Cisco A100 Hyperswitch with 1.2(0) or later	Cisco 4000, 4500 Cisco 25xx Cisco 7000, 7010 Cisco A100 Hyperswitch
Configuration Management	Cisco IOS Release 8.2 through 10.0	
Device Polling	Supports MIB I and II and Cisco MIB variables up through Cisco IOS Release 10.3	

CiscoWorks Application	Hardware or Software Requirement	Cisco Devices Supported
Environmental Monitor	Cisco IOS Release 9.0 and 10.0 Revision 4 Environmental Monitor (ENVM) Card (Microcode version 2.0 or later)	Cisco 7000, AGS+
Software Management suite (Software Library Manager, Software Inventory Manager, and Device Software Manager)	Cisco 3000: Software Release 9.1(7.5) or later, or 9.1(8) or later Cisco AGS+: Software Release 9.1(7.5) or later, or 9.1(8) or later Cisco 4000: Software Release 9.14(3.4) or later, or 9.14(4) or later Cisco 7000: Software Release 9.17(5.2) or later, or 9.17(6) or later All routers (collection of Cisco 3000, 4000, and 7000, or AGS+ routers) Software Release 9.21(0.26) or later, 9.21(1) or later, or 9.1(8) or later	Device types with Flash memory: Cisco 3000, Cisco 4000, Cisco 7000, Cisco AGS+, and Cisco CGS and MGS Device types with Run-from-Flash images: Cisco 2500 and Cisco 3000

CiscoConnect Software Requirements

CiscoConnect software requirements are described below. If you plan to use CiscoConnect, follow these instructions to configure it.

1 To use CiscoConnect, you must run the sendmail daemon. CiscoConnect relies on e-mail to send data to and receive data from the server. The installation scripts create three mail aliases in your */etc/aliases* file:

- cw-admin—Creates and receives error and administrative messages.
- ciscoconnect-client—Determines how CiscoConnect receives responses from the server.
- ciscoconnect-server—Points to the CiscoConnect server at Cisco. This server receives all messages from your CiscoWorks workstation.

You may assign any mail alias or username(s) to the cw-admin alias, but the other two aliases should not be changed. The installation script prompts you for a value for cw-admin. The default for cw-admin is *postmaster*. It is recommended that you change this value to specify the e-mail address of the person responsible for administering CiscoConnect or e-mail.

If you are not running sendmail, it is likely that you do not have the configuration file for sendmail. If this is the case, you need to create this file as described below. On SunOS, this file is */etc/mail/sendmail.cf*; on Solaris or HP-UX 10.x, it is */etc/mail/sendmail.cf*; on HP-UX 9.x, it is */usr/lib/sendmail.cf*.

Note You must be logged in as “root” to perform these functions.

On HP-UX:

To enable the sendmail daemon, you need to use System Administration Manager (SAM). From the Networking/Communications menu, open the Services: Enable/Disable window. Set the status of Sendmail to Enabled. This will enable the sendmail daemon and create the sendmail configuration files */usr/lib/sendmail.cf* and */usr/lib/aliases* for HP-UX 9.x and */usr/lib/sendmail.cf* and */usr/lib/aliases* for HP-UX 10.x.

Edit your */usr/lib/aliases* file to make sure it contains the following two aliases:

```
MAILER-DAEMON: postmaster
postmaster: root
```

On SunOS:

The directory */usr/lib* contains two sample *sendmail.cf* files called *sendmail.main.cf* and *sendmail.subsidiary.cf*. Generally, you will use *sendmail.subsidiary.cf*. Copy the file to */etc/sendmail.cf* and edit it to change the word "mailhost" to the name of your site's mail server in the lines beginning with "DR" and "CR." For example, if your mail server is called "hubbub," change the lines:

```
DRmailhost
CRmailhost
```

to:

```
DRhubbub
CRhubbub
```

Note Do not add any spaces to the "mailhost" lines. Also, do not make any other changes to the file.

HP-UX 9.x only:

After setting up the configuration file for sendmail, you need to select the sendmail program to use. There are two binaries in */usr/lib* called *sendmail.mx* and *sendmail.nomx*. If your site has a connection to the Internet, it is recommended you use *sendmail.mx*. Link the file to *sendmail*; it is likely that *sendmail.mx* is already linked to *sendmail*. To identify the file you are using, enter the following command and compare the inode numbers:

```
ls -i /usr/lib/sendmail*
```

The file that has the same number as the *sendmail* file is the one that is currently installed. To change it (for example from *mx* to *nomx*), enter the following commands:

```
cd /usr/lib
rm sendmail
ln sendmail.nomx sendmail
```

Note The file *sendmail.nomx* must exist before you enter this command.

To run the sendmail daemon, ensure that the following lines exist in the */etc/rc.local* file:

```
if [ -f /usr/lib/sendmail -a -f /etc/sendmail.cf ]; then
 (cd /var/spool/mqueue; rm -f nf* lf*)
 /usr/lib/sendmail -bd -q1h; echo -n ' sendmail'
fi
```

The next time you reboot your machine, the sendmail daemon should be running. To verify that the sendmail daemon is running, enter the following command:

HP-UX:

```
ps -ef | grep sendmail
```

Look for the following line: `/usr/lib/sendmail -bd -q1h`. You can also start the sendmail daemon without rebooting your system by entering the following command:

HP-UX 9.x:

```
/usr/lib/sendmail -bd -q1h
```

HP-UX 10.x:

```
/usr/sbin/sendmail -bd -q1h
```

On Solaris:

The directory */etc/mail* contains two sample *sendmail.cf* files called *main.cf* and *subsidiary.cf*. Generally, you will use *subsidiary.cf*. Copy the file to */etc/mail/sendmail.cf* and edit it to change the word "mailhost" to the name of your site's mail server in the lines beginning with "DR" and "CR." For example, if your mail server is called "hubbub," change the lines:

```
DRmailhost
CRmailhost
```

to:

```
DRhubbub
CRhubbub
```

Note Do not add any spaces to the "mailhost" lines. Also, do not make any other changes to the file.

After setting up the configuration file for sendmail, you need to select the sendmail program to use. There are two binaries in */usr/lib* called *sendmail.mx* and *sendmail.nomx*. If your site has a connection to the Internet, it is recommended you use *sendmail.mx*. Link the file to *sendmail*; it is likely that *sendmail.mx* is already linked to *sendmail*. To identify the file you are using, enter the following command and compare the inode numbers:

```
ls -i /usr/lib/sendmail*
```

The file that has the same number as the *sendmail* file is the one currently installed. To change it (for example from *mx* to *nomx*), enter the following commands:

```
cd /usr/lib
rm sendmail
ln sendmail.nomx sendmail
```

Note The file *sendmail.nomx* must exist before you enter this command.

To run the sendmail daemon, ensure that the following lines exist in the */etc/rc2.d/SXXsendmail* file:

```
if [ -f /usr/lib/sendmail -a -f /etc/sendmail.cf ]; then
 (cd /var/spool/mqueue; rm -f nf* lf*)
 /usr/lib/sendmail -bd -q1h; echo 'sendmail'
fi
```

The next time you reboot your machine, the sendmail daemon should be running. To verify that the sendmail daemon is running, enter the following command:

```
ps -ef | grep sendmail
```

Look for the following line: `/usr/lib/sendmail -bd -q1h`. You can also start the sendmail daemon without rebooting your system by entering the following command:

HP-UX 9.x:

```
/usr/lib/sendmail -bd -q1h
```

HP-UX 10.x:

```
/usr/sbin/sendmail -bd -q1h
```

2 The sendmail configuration at most sites uses a configuration option known as "host hiding," so that outgoing mail from *host.company.com* appears to be coming directly from *company.com*, with no mention of the particular host that sent the message. However, for the CiscoConnect server to send messages to the CiscoConnect client running on your workstation, this feature needs to be disabled, since with it enabled you cannot find which workstation sent the message.

If you are running **sendmail 8**, the most common way of disabling this feature is by changing the following line in */etc/sendmail.cf* or */etc/mail/sendmail.cf*:

```
# who I masquerade as (null for no masquerading)
DMcompany.com
```

to:

```
# who I masquerade as (null for no masquerading)
DM
```

If you are running **sendmail 5**, the original vendor supplied *sendmail.cf* file should have host hiding disabled by default.

For HP-UX 9.x only, the vendor-supplied *sendmail.cf* file has a macro Y for host hiding. If you have a line that reads something like the following, comment it out to run CiscoConnect:

```
DYcompany.com
```

3 To transmit messages to the CiscoConnect server, your machine must be able to reach the mail server for *cisco.com*. If you are running Domain Name System (DNS) or an MX mailer, or have any form of working email configuration to reach the Internet, your machine should be able to find *cisco.com* without any modifications. In the unlikely event that you are directly connected to the Internet and rely on a host table exclusively, you can add the following entry for *cisco.com*:

```
198.92.30.32    cisco cisco.com cisco.cisco.com
```

4 Check to see if sendmail syslog messages are being logged somewhere. Examine the file */etc/syslog.conf* for a line containing "mail.debug" to determine the destination of these messages. (The default on Sun systems is */var/log/syslog* if the workstation is also the loghost.) If sendmail syslog messages do not appear to be logged anywhere, you should modify your */etc/syslog.conf* file to contain the following entry:

On SunOS or Solaris:

```
mail.debug /var/log/syslog
```

On HP-UX 9.x:

```
mail.debug /usr/spool/mqueue/syslog
```

On HP-UX 10.x:

```
mail.debug /var/adm/syslog/mail.log
```

You can now monitor incoming and outgoing e-mail messages by running the following command:

```
tail -f file
```

where *file* is the filename appropriate for your machine.

5. The value of *$NMSROOT* must be less than 22 characters long. You should use the default value of */usr/nms* for HP-UX 9.x and */opt/CSCOcwh* for HP-UX 10.x. If you choose to use another directory, make sure that the directory you choose is less than 22 characters long. This is because the Perl scripts use the #! syntax to find the Perl interpreter, which is located in *$NMSROOT/etc*. There is a limit of 32 characters imposed by the operating system on the length of the #! line. The "#!" and the "/etc/perl" parts use 10 characters, leaving 22 for the *$NMSROOT* variable.
6. To test the e-mail connection to Cisco, the software provides a way to send a test message to the CiscoConnect server. To run the test, execute the script *nmccsendtest*, which is in *$NMSROOT/etc*. If a response comes back from Cisco, a message is sent via e-mail to the user who sent the initial message provided that user's UNIX username is the same as a CiscoConnect user; otherwise, the message goes to the cw-admin alias. You must watch both addresses for the response. If you receive the response, it means that the system is working. You may also want to monitor the syslog file (see 4 above) to check the progress of the test message.

Gathering Information for Installation and Configuration

Before you install and configure CiscoWorks, complete the CiscoWorks Installation and Configuration Worksheets to identify installation requirements and gather the information required for running the installation and configuration scripts.

Refer to the worksheets when installing and configuring your CiscoWorks software.

CiscoWorks Installation Worksheet

Complete the Installation Worksheet. Refer to Table 2-5 for an explanation of the worksheet questions.

INSTALLATION WORKSHEET FOR SUNOS			
SunOS 4.1.2. or later?	☐ **yes**	☐ **no**	
OpenWindows version 3.0 ?	☐ **yes**	☐ **no**	
SunNet Manager version 2.0?	☐ **yes**	☐ **no**	
250-300 MB of free hard disk space for CiscoWorks on a single disk partition?	☐ **yes**	☐ **no**	
32 MB RAM? (64 MB recommended)	☐ **yes**	☐ **no**	
64 MB of swap space? (128 MB recommended)	☐ **yes**	☐ **no**	
Set up TFTP to transfer configuration files?	☐ **yes**	☐ **no**	
INSTALLING CiscoWorks			
Location of CD-ROM drive.	☐ **local**	☐ **remote**	
If the CD-ROM drive is remote, do you have superuser access to the remote system?	☐ **yes**	☐ **no**	
Name of the remote system?	_____		
Does the *.rhosts* file on the remote system contain the host name of your system and list your username as root?	☐ **yes**	☐ **no**	
Device name of the CD-ROM drive?	☐ **sr0**	☐ **sr1**	☐ **sr2**
	☐ **other** _____		
Type of installation?	☐ **new**	☐ **upgrade**	
Complete path name of the directory in which CiscoWorks will be installed.	☐ **usr/nms**	☐ **other** _____	
Name of the kernel configuration file in the /usr/share/sys/$ARCH/conf directory.	☐ **GENERIC**	☐ **other** _____	
TACACS INFORMATION			
Installing a TACACS server?	☐ **yes**	☐ **no**	
Start TACACS daemon during system reboot?	☐ **yes**	☐ **no**	
TACACS username?	_____		

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Username password? _____			
Using Extended TACACS mode?	☐ **yes**	☐ **no**	
Extended TACACS mode password? _____			
ADDITIONAL UPGRADE INSTALLATION INFORMATION			
Complete path name of the directory for the existing version of CiscoWorks?	☐ **/usr/nms**	☐ **other** _____	**See page 2-12.**
Sybase SA password? _____			**See page 2-12.**
System has at least 45 MB of disk space for the upgrade, and 10 MB (database space) available for saving the existing database?	☐ **yes**	☐ **no**	**See page 2-12.**

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INSTALLATION WORKSHEET FOR SOLARIS		
Solaris 2.4 or later?	☐ yes	☐ no
OK, no changes.	☐ yes	☐ no
SunNet Manager version 2.2.2 or later?	☐ yes	☐ no
250-300 MB of free hard disk space for CiscoWorks on a single disk partition?	☐ yes	☐ no
64 MB RAM?	☐ yes	☐ no
128 MB of swap space?	☐ yes	☐ no
Set up TFTP to transfer configuration files?	☐ yes	☐ no
INSTALLING CiscoWorks		
Location of CD-ROM drive.	☐ local	☐ remote
If the CD-ROM drive is remote, do you have superuser access to the remote system?	☐ yes	☐ no
Name of the remote system?	_____	
Type of installation?	☐ new	
Complete path name of the directory in which CiscoWorks will be installed.	☐ /opt/CSCOcw	☐ other _____
TACACS INFORMATION		
Installing a TACACS server?	☐ yes	☐ no
Start TACACS daemon during system reboot?	☐ yes	☐ no
TACACS username? _____		
Username password? _____		
Using Extended TACACS mode?	☐ yes	☐ no
Extended TACACS mode password? _____		

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INSTALLATION WORKSHEET FOR HP-UX 9.x		
HP-UX A.09.03 or later?	☐ yes	☐ no
X Windows?	☐ yes	☐ no
A window manager such as Motif or HP VUE?	☐ yes	☐ no
HP OpenView 3.3 or later?	☐ yes	☐ no
1000 MB of free hard disk space on a single disk partition?	☐ yes	☐ no
64 MB of RAM?	☐ yes	☐ no
110 MB of swap space?	☐ yes	☐ no
Set up TFTP to transfer configuration files?	☐ yes	☐ no
INSTALLATION WORKSHEET FOR HP-UX 10.x		
HP-UX B.10.01 or later?	☐ yes	☐ no
X Windows?	☐ yes	☐ no
A window manager such as Motif or HP VUE?	☐ yes	☐ no
HP OpenView 4.0 or later?	☐ yes	☐ no
1000 MB of free hard disk space?	☐ yes	☐ no
64 MB of RAM?	☐ yes	☐ no
110 MB of swap space?	☐ yes	☐ no
Set up TFTP to transfer configuration files?	☐ yes	☐
INSTALLING CiscoWorks		
Location of CD-ROM drive?	☐ local	☐ remote
If the CD-ROM drive is remote, do you have superuser access to the remote system?	☐ yes	☐ no
Name of the remote system?	_____	
Does the *.rhosts* file on the remote system contain the host name of your system and list your username as root?	☐ yes	☐ no
Device name of the CD-ROM drive?	☐ other _____	
Type of installation?	☐ new	☐ upgrade
Complete path name of the directory in which CiscoWorks will be installed?	☐ /usr/nms	☐ other _____
TACACS INFORMATION		

Installation Worksheet Items

Table 2-5 explains each question on the Installation Worksheet. This information is required to install CiscoWorks. During installation, prompts appear requesting information for the items listed in the installation option column of the table. The order of the list is the sequence in which the installation script prompts you for an answer. To obtain and verify system information for some items on the worksheet, you must log in as the superuser. Logging in as the superuser is described in the "Becoming the Superuser" section in the "Installing and Configuring CiscoWorks" chapter.

Table 2-5 Installation Descriptions for SunOS, Solaris, and HP-UX Systems

Installation Option	SunOS Systems	Solaris Systems	HP-UX Systems
System operating system	Use **uname -r** to display SunOS Version 4.1.3 or 4.1.3_U1 (Solaris 1.X) or 4.1.4.	Use **uname -r** to display Solaris Version 2.4 (SunOS 5.4).	Use **uname -r** to display HP-UX Version 10.x or later.
Windowing system	OpenWindows (Motif) OpenLook.	OpenWindows (Motif) OpenLook.	X Windows as well as Motif or HP Visual User Environment (VUE).
Network Management Station (NMS) platform software	Use **$SNMHOME/bin/ snm_version** to display the SunNet Manager version.	Use **$SNMHOME/bin/ snm_version** to display the SunNet Manager version.	Use **/usr/OV/bin/ovlicense** (HP-UX 9.x) or **/opt/ifor/ls/bin/i4stat** d(HP-UX 10.x) to display the HP OpenView license information.
Hard disk space	Use **df** to display the amount of disk space available in each file system.	Use **df -lk** to display the amount of disk space available in each file system.	Use **bdf** to display the amount of disk space available in each file system.
Random-access memory (RAM)	As the superuser, use **dmesg | grep mem** to display available RAM on your system.	As the superuser, use **dmesg | grep mem** to display available RAM on your system.	As the superuser, use **/etc/dmesg | grep Kbytes** (HP-UX 9.x) or **/etc/sbin/dmesg | grep Kbytes** (HP-UX 10.x) to display available RAM on your system.
Swap space	As the superuser, use **pstat -s** to display system swap space.	As the superuser, use **swap -s** to display system swap space.	As the superuser, use **swapinfo** to display system swap space.
Configuring Trivial File Transfer Protocol (TFTP)	Edit the */etc/inetd.conf* file on your system as described in the section "Removing Log Files" in the "Installing and Configuring CiscoWorks" chapter. You can perform this task either before or after CiscoWorks installation and configuration.	Answer **yes** to installation setup of TFTP.	Answer yes to installation setup of TFTP.
Type of installation	If you are installing CiscoWorks for the first time, check "new" on your worksheet. If you are moving from an installed version of CiscoWorks (Version 2.0 or later) to Version 3.0, check "upgrade." If you are upgrading, complete the additional "Additional Upgrade Installation Information" section at the end of the worksheet.	If you are installing CiscoWorks for the first time, check "new" on your worksheet.	If you are installing CiscoWorks for the first time, check "new" on your worksheet. If you are moving from an installed version of CiscoWorks (Version 2.1 or later) to Version 3.0, check "upgrade." If you are upgrading, complete the additional "Additional Upgrade Installation Information" section at the end of the worksheet.

Installation Option	SunOS Systems	Solaris Systems	HP-UX Systems
Directory path name for CiscoWorks	Default directory path name is */usr/nms*.	Default directory path name is */opt/CSCOcw*.	Default directory path name is */usr/nms* (HP-UX 9.x) or */opt/CSCOcwh* (HP-UX 10.x).
Sybase 10.0 installation[1]	Directory path and kernel modifications options.	Directory path and kernel modifications options.	Directory path.
CD-ROM drive location	Local or remote installation.	Local or remote installation.	Local or remote installation.
Remote installation	Make sure you have superuser login account privileges (in other words, *root*) on the Sun system and that the complete host name of the remote system is listed in the */etc/hosts* file on your system.	Make sure you have superuser login account privileges (in other words, root) on the Sun system and that the complete host name of the remote system is listed in the */etc/hosts* file on your system.	Make sure you have superuser login account privileges (in other words, *root*) on the HP system and that the complete host name of the remote system is listed in the */etc/hosts* file on your system.
.rhosts file	If you install CiscoWorks from a remote CD-ROM drive, the *.rhosts* file on that system must contain the host name of your local system and your username specified as a superuser. To verify the local host name and your superuser privileges, view the *.rhosts* file with a text editor such as *vi* or *vuepad*.	Not necessary to edit the *.rhosts* file on Solaris.	If you install CiscoWorks from a remote CD-ROM drive, the *.rhosts* file on that system must contain the host name of your local system and your username specified as a superuser. To verify the local host name and your superuser privileges, view the *.rhosts* file with a text editor such as *vi* or *vuepad*.
CD-ROM device type and name	To display all the devices in the */dev* directory, use **ls /dev | more**. CD-ROM drives usually have device names similar to *sr0*.	To display all the devices in the */dev/rdsk* directory, use **ls /dev/rdsk | more**. CD-ROM drives usually have device names similar to *c*s2*.	To display all the devices in the */etc/ioscan* directory, use **ls /dev/dsk | more**. CD-ROM drives usually have device names similar to *c201d1s0* (HP-UX 9.x) or *c0t1d0* (HP-UX 10.x).
Sybase databases and log devices	Decide where to place your Sybase databases and log devices—on raw partition or UNIX file systems.	Decide where to place your Sybase databases and log devices—on raw partition or UNIX file systems.	Decide where to place your Sybase databases and log devices—on raw partition or UNIX file systems.
Terminal Access Controller Access System (TACACS)[2]	Select options for configuring a TACACS server and supplying username and password information for TACACS and extended TACACS modes.	Select options for configuring a TACACS server and supplying username and password information for TACACS and extended TACACS modes.	Select options for configuring a TACACS server and supplying username and password information for TACACS and extended TACACS modes.
Upgrade Installation Options[3]			
Pathname for CiscoWorks directory	Specify */usr/nms* or appropriate directory.	Not applicable.	Specify */usr/nms* (HP-UX 9.x only) or appropriate directory. This is not applicable for HPUX 10.x.
Sybase password	Enter current Sybase password during upgrade.	Not applicable.	Enter current Sybase password during upgrade. This is not applicable for HPUX 10.x.
Disk space for saving existing Sybase database	Make sure you have 100 MB disk space for Sybase and 50 MB free space for upgrade procedure.	Not applicable.	Make sure you have 100 MB disk space for Sybase and 50 MB free space for upgrade procedure. This is not applicable for HPUX 10.x.

1. Sybase installation requires the database to be located on the same system as CiscoWorks. If you are a knowledgable Sybase user, you can perform a manual Sybase installation in order to take advantage of Sybase's client/server capabilities. This option is not supported by Cisco.
2. If you do not configure TACACS, you may be unable to use several CiscoWorks applications.

3. If you are upgrading from an existing version of CiscoWorks (in which users may have belonged to more than one group), the installation script alerts you that any existing user-to-multiple-group associations will be disconnected. If you proceed with the upgrade, you must use the Security Manager application to reconnect each user to only one group; then add the group to a domain. Any existing one-user-to-one-group associations are preserved during the upgrade.

CiscoWorks Configuration Worksheet

Complete the Configuration Worksheet. The same worksheet applies to SunOS, Solaris, and HP-UX installations. Refer to Table 2-6 for an explanation of the worksheet questions.

CONFIGURATION WORKSHEET		
Type of installation?	☐ new	☐ upgrade
Directory in which CiscoWorks is installed?	☐ on HP-UX 9.x, SunOS, /usr/nms on Solaris, HP-UX 10.x, /opt/CSCOcw?	☐ other _____
Directory in which Sybase is installed?	☐ on HP-UX 9.x, SunOS, /usr/nms on Solaris, HP-UX 10.x, /opt/CSCOcw/sybase	☐ other _____
CiscoWorks group name?	☐ cscworks	☐ other _____
CiscoWorks group ID?	☐ 55	☐ other _____
Usernames of individuals who will belong to CiscoWorks group?	Username _____ Username _____ Username _____ Username _____	
CiscoWorks username?	☐ cscworks	☐ other _____
CiscoWorks user ID number?	☐ 100	☐ other _____
CiscoWorks login account name?	☐ CiscoWorks	☐ other _____
CiscoWorks home directory?	☐ on HP-UX 9.x, SunOS, /usr/nms on Solaris, HP-UX 10.x, /opt/CSCOcw?	☐ other _____
Type of shell for CiscoWorks?	☐ /bin/csh	☐ other _____
CONFIGURING CiscoConnect		
SmartNet™ contract#?	Contract # _____	
Organization name?	Name _____	
httpd Port number?	☐ 22854	☐ other _____
Add aliases to sendmail aliases file?	☐ yes	☐ no
Location of aliases file?	☐ on SunOS, /etc/aliases on Solaris, HP-UX 10.x, /etc/mail/aliases on HP-UX 9.x, /usr/lib/aliases	☐ other _____
Administrative email alias	☐ postmaster	☐ other _____
CONFIGURING LOG FILES AND FACILITIES		
Directory path name for HP Openview?	☐ on SunOS,HP-UX, /usr/OV	☐ other _____
Log file for CiscoWorks messages? (HP-UX 9.x only)	☐ HPUX/opt/ON	☐ other _____
(HP-UX 10.x only)	☐ HPUX/opt/ON	☐ other _____
Syslog facility for CiscoWorks messages?	☐ local7	☐ other _____
Erasing applications that use the facility?	☐ yes	☐ no _____
Enabling the CiscoWorks log purging utility?	☐ yes	☐ no _____

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Configuration Worksheet Items

Table 2-6 explains each item on the Configuration Worksheet. This information is required to configure CiscoWorks. For detailed information on the */etc/passwd* and */etc/group* files, usernames, user IDs, group names, and group IDs, refer to the HP-UX or Solaris 2.4 system manuals.

Table 2-6 Configuration Descriptions for SunOS, Solaris, and HP-UX Systems

Configuration Option	SunOS, Solaris, and HP-UX Systems
Installation type	New or upgrade. On Solaris or HPUX 10.x, you can only do a new installation.
CiscoWorks directory	On SunOS and HP-UX 9.x, select */usr/nms* or other appropriate directory. On Solaris and HP-UX 10.x, select */opt/CSCOcwh* or other appropriate directory.
CiscoWorks group name[1]	On SunOS and HP-UX 9.x, the CiscoWorks group name is added to */etc/group* and */etc/logingroup* files during configuration. On Solaris or HP-UX 10.x, the CiscoWorks group name is added to */etc/group* file during configuration. The default on all systems is *cscworks*.
CiscoWorks group ID[2]	Select default ID of 55, or check the */etc/group* file to ensure new ID number.
CiscoWorks group usernames	Make sure the users have a login account on the system and that you add the account information to the */etc/group* and */etc/logingroup* files on SunOS and HP-UX. On Solaris, use the **admintool** to add user accounts on the system. On HP-UX 10.x, use the System Administrator Manager (SAM) to add user accounts on the system.
CiscoWorks username	Use the default name of *cscworks*. This name is added to the */etc/passwd* and */etc/group* files. On Solaris, it is also added to the */etc/shadow* file.
CiscoWorks user ID number	Use unique number default of 100. This number is added to the */etc/passwd* file.
CiscoWorks login account name	Use the default name of CiscoWorks. This name is added to the */etc/passwd* file.
CiscoWorks home directory	CiscoWorks is seen as a user on your system and has a default directory of */usr/nms* on SunOS and HP-UX 9.x and */opt/CSCOcwh* on Solaris and HP-UX 10.x.
MIB operations	Install new MIB files or use existing MIB files.
Sybase directory[3]	On SunOS and HP-UX 9.x, select */usr/nms* or other appropriate directory. On Solaris and HP-UX 10.x, select */opt/CSCOsyb* or other appropriate directory. The default Sybase directory is */usr/nms* on SunOS and HP-UX 9.x, and */opt/CSCOsyb* on Solaris and HP-UX 10.x. The default Sybase directory is also known as $SYBASE.
Sybase user name	Use the default name of *sybase*. This name is added to the */etc/passwd* and */etc/group* files. On Solaris, it is also added to the */etc/shadow* file.
Sybase backup server name	On SunOS and HP-UX, use the default name of *CW_SYB_BACKUP*. On Solaris, use the default name of *CW_BACKUP_SERVER*.
Sybase SA password	The default password is *sybasesa*. You cannot change the default during installation.
Sybase full name	Use the default name of Sybase. This name is added to the */etc/passwd* file.
Master device path	Use the default of *$SYBASE/data*.
Master device physical file name	Use the default of *master.dat*.
Sybase system procedures database location	Use the default *sybsysp*roc in *$SYBASE/data*. You may also select a raw partition, for example */dev/sr1* on SunOS, */dev/rdsk/c0t3d0s2* on Solaris, or */dev/rdsk/c201d5s2* on HP-UX 9.x and */dev/rdsk/c0t1d0* on HP-UX 10.x systems.

Configuration Option	SunOS, Solaris, and HP-UX Systems
CiscoWorks NMS database name	On SunOS and HP-UX 9.x, the default is *nms*. On Solaris or HP-UX 10.x, the default is *cw_datadevice_nms*.
CiscoWorks polling database name	On SunOS and HP-UX 9.x, the default is *polldb.*On Solaris or HP-UX 10.x, the default is *cw_datadevice_polldb.*
CiscoWorks NMS database size	Use the default of 20 MB. This is where the Sybase database stores device inventory information.
CiscoWorks NMS log device size	Use the default of 5 MB. This is where the Sybase database stores transaction log space.
CiscoWorks polling database size	Use the default of 40 MB or more. This is where the Sybase database stores polling information.
CiscoWorks polling database log device size	Use the default of 20 MB. This is where the Sybase database stores polling messages.
TFTP configuration	
Directory path name for NMS	Default directories are */usr/snm* and */usr/ov* on SunOS, */opt/SUNWconn/snm* on Solaris, */usr/OV* on HP-UX 9.x, and /opt/OV on HP-UX 10.x.
SmartNet contract number	Enter your SmartNet contract number.
Organization name	Enter the name of your organization or company.
Port number	The default is 22854. This is the TCP port used by CiscoConnect.
Sendmail aliases file	The default is to specify "Yes" to add aliases to the file.
Location of aliases file	Default location is */etc/aliases* on SunOS, */etc/mail/aliases* on Solaris or HP-UX 10.x, and */usr/lib/aliases* on HP-UX 9.x.
Administrative email alias	The default is postmaster. It is recommended that you change the default to the name of the person who is responsible for administering CiscoConnect or email. This value is assigned to the "cw-admin" alias.
CiscoWorks message log file	Default centralized log files are */var/log/nmslog* on SunOS and Solaris, and */usr/OV/log/nmslog* (HP-UX 9.x) or */var/opt/OV/log* (HP-UX 10.x).
System Log (syslog) facility for CiscoWorks messages	To log both CiscoWorks messages and Cisco device messages, use the default facility *local7*. Cisco devices use the *local7* facility. If you specify a facility in the range of *local0* through *local6*, only CiscoWorks messages are logged. Information about the facility you choose is stored in the *$NMSROOT/etc/nms.rc* file.
Erasing applications that use the syslog facility	Specify Yes if you want the CiscoWorks log utility to use the *syslog* facility to transfer or exchange information such as error messages or receive extraneous messages in the database message logger.
Modification of */etc/rc.local* or */etc/rc2.d/SxxCiscoWorks* file	The Sybase dataserver and other CiscoWorks daemons must run as background processes for correct operation of CiscoWorks. This section of the configuration modifies */etc/rc.local* (on SunOS and HP-UX 9.x), */etc/rc2.d/SxxCiscoWorks* (on Solaris) or */sbin/init.d/CiscoWorksRC* (on HP-UX 10.x) to include **nmstartup** (which starts the Sybase dataserver and CiscoWorks daemons during system reboot).
Enabling the CiscoWorks log purging utility	Enables daily purging and backing up of the CiscoWorks centralized log, **nmslog**, via a UNIX scheduling daemon.

1. While you are configuring CiscoWorks, you can add users to the */etc/group* and the */etc/logingroup* files (on SunOS and HP-UX 9.x) or */etc/group* only (on Solaris or HP-UX 10.x) by responding to the configuration script questions. However, if you are running Network Information Services (NIS), you must update the files manually.
2. In most cases, the configuration script adds the CiscoWorks group number to the */etc/group* file during configuration. However, if you are running Network Information Services, you must update the */etc/group* file manually.

3. Sybase installation requires that the database be located on the same system as CiscoWorks. If you are a knowledgeable Sybase user, you can perform a manual Sybase installation to take advantage of Sybase's client/server capabilities. This option is not supported by Cisco.