CHAPTER 2

Preparing to Install CiscoWorks on HP-UX

This chapter describes how to prepare to install and configure CiscoWorks so that it runs on HP OpenView on HP-UX.

As you read this chapter, you should complete the CiscoWorks Installation Worksheet and the CiscoWorks Configuration Worksheet, which are included in this chapter. You can then refer to the worksheets as you proceed with the installation.

If you are installing CiscoWorks 2.1 on HP-UX, you will perform a new installation of CiscoWorks. There is no upgrade path from CiscoWorks on SunNet Manager (SNM) to CiscoWorks 2.1 on HP OpenView on HP-UX. If you need further help, please contact your service support representative.

Verifying Your System Requirements

Before you install CiscoWorks on your system, make sure that your system meets the general system requirements described in Table 2-1.

Table 2-1 General System Requirements for CiscoWorks 2.1

Operating System	Free Hard Disk Space	RAM	Swap Space	Free Root Partition
HP-UX A.09.03 or HP-UX A.09.05	1,000 MB	64 MB	110 MB (minimum) 128 MB (recommended)	5 MB

The minimum swap space requirement (110 MB) is suitable for managing small networks. For managing larger numbers of devices, you need more swap space. Specifically, for managing more than 75 to 100 devices, Cisco recommends at least 128 MB of swap space.

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

Additional Hardware Requirements

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

- Hewlett-Packard 9000 system, series 700
- Color monitor
- CD-ROM drive, either local to the workstation or available remotely across a network
- PostScript-compatible printer, in order to print snapshot images

Additional Software Requirements

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

- HP OpenView, Version 3.3 or later
- HP-UX, Version A.09.03 or later
- X Windows
- A windowing environment such as Motif (for example, HP VUE)

Several CiscoWorks applications have specific Cisco Systems software requirements. For more information, refer to the *CiscoWorks User Guide*. The Configuration Management application, for example, requires Cisco Systems Software Release 8.2 or later.

Some Sample Configurations

The following sample configuration represents the system requirements used by a network manager who ran six common CiscoWorks applications on HP OpenView in order to manage five network devices. Table 2-2 lists the swap space requirements of this sample network.

Table 2-2 Swap Space Used to Manage Five Network Devices

CiscoWorks Network Management Components	Swap Space Usage
CiscoWorks daemons (collective processes that perform the specific functions of CiscoWorks)	15,704 KB[1]
Sybase database	2682 KB
HP OpenView windows	9000 KB
HP-UX	30,720 KB (approximately)
Configuration Snap-In Manager	26,969 KB
Process Manager	3588 KB
Configuration Management	7893 KB
Device Management	5082 KB
Global Command Manager	7121 KB
Sync w/Sybase	7168 KB
Total amount of swap space usage	10,8975 KB or 106.42 megabytes (MB)

1. For details on system requirements for HP OpenView, refer to the Hewlett-Packard publication, *HP OpenView SNMP Management Platform Performance and Configuration Guide, with HP Network Node Manager Examples* for Release 3.3.

The collective swap space used by the CiscoWorks daemons (15704 KB) in Table 2-2 reflects what is used by the three significant CiscoWorks daemons as they manage five devices. As more devices are added, the swap space requirements increase, as shown in Table 2-3.

Table 2-3 Swap Space Used by Daemons to Manage Five Network Devices

CiscoWorks Daemons that Use Significant Swap Space	Swap Space Usage	Swap Space Required for Each Additional Device
nmlogd	676 KB	No adjustments
nmpolld	8192 KB	500 KB
nmeventd	2536 KB	No adjustments
Total	11404 KB or 11.1 megabytes (MB)	500 KB of swap space for each new device managed by CiscoWorks

Depending on the router you are using, the Device Software Manager application requires a specific Cisco Systems Software Release, as shown in Table 2-4. Before trying to run Device Software Manager, confirm that your router meets the software requirement as defined in the following table:

Table 2-4 Router and Software Requirements for Use with Device Software Manager

Cisco Router Type	Router System Software Requirement
Cisco 2500	Software Release 9.14(4)-9.14(8) or later
Cisco 3000	Software Release 9.1(7.5) or later
Cisco AGS+	Software Release 9.1(7.5) or later
Cisco 4000	Software Release 9.14(3.4) or later
Cisco 7000	Software Release 9.17(5.2) or later
all Cisco routers (collection of Cisco 3000, Cisco 4000, Cisco 7000, or AGS+ routers)	Software Release 9.21(0.26) or later or 9.1(8) or later
Cisco 7000 routers on which you want to perform microcode upgrades	Software Release 9.17(5.2) or later; 9.21(0.32) or later

Gathering Information for Installation and Configuration

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

When properly completed, the CiscoWorks Installation Worksheet provides the information you must enter when running the installation script, and the CiscoWorks Configuration Worksheet helps you gather the information you need to run the configuration script.

Complete both worksheets and refer to them when installing and configuring your CiscoWorks software.

CiscoWorks Installation Worksheet

INSTALLATION WORKSHEET FOR HP-UX		
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
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		
Installing a TACACS server?	☐ yes	☐ no
TACACS username?	_____	
Username password?	_____	
Using extended TACACS mode?	☐ yes	☐ no
Extended TACACS mode password?	_____	

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Installation Worksheet Items

This section explains each question on the Installation Worksheet. This information is required for the installation of CiscoWorks. To obtain and verify system information for some items in the worksheet, you will need to be logged in as a superuser. Logging in as a superuser is described in the section "Becoming a Superuser," in Chapter 3.

HP-UX

Your workstation must be running HP-UX Version A.09.03 or later before you can install CiscoWorks. To determine what version of HP-UX you are running, enter:

```
hostname% uname -r
```

The HP-UX version number displays on your monitor, similar to the following:

```
A.09.03
```

On your worksheet, indicate whether your system meets this requirement.

Windowing System

Confirm that your system is running X Windows as well as a window manager such as Motif or HP Visual User Environment (VUE). On your worksheet, indicate whether your system meets these two requirements.

HP OpenView

You must install HP OpenView 3.3 on your workstation before you can install CiscoWorks. To find out whether HP OpenView is already installed on your system, enter the following command:

```
hostname% /usr/OV/bin/ovlicense
```

If HP OpenView is properly installed, you should see output similar to the following:

```
Valid permanent activation key for HP OpenView
for IP address 198.90.32.12
```

The output verifies that your HP OpenView license is valid. On your worksheet, indicate whether your system meets this requirement. If you check no, you need to install or upgrade to HP OpenView Version 3.3.

Hard Disk Space

CiscoWorks requires 1,000 MB of disk space in a single disk partition on your system. You can install CiscoWorks and Sybase with as little as 500 MB of disk space, but Cisco recommends about 1,000 MB to allow for entering data in your Sybase database. If the disk partitions on your system are full, with inadequate disk space available for CiscoWorks, create a disk partition, a file system, or both for CiscoWorks software.

Calculating Disk Space Requirements

To find out how much disk space is available on your system, enter the following command:

```
hostname% bdf
```

The amount of disk space available in each file system is displayed. Select a file system that has sufficient disk space available for installing CiscoWorks.

The following overview summarizes the steps involved in creating a file system:

Step 1 Create an empty file system on the disk partition you plan to use.

Step 2 Verify the integrity of the empty file system.

Step 3 Create a mount point directory.

Step 4 Configure the file system table and edit the */etc/fstab* file.

Step 5 Mount the new file system.

For more information, refer to the manual pages on **mkfs**, **fsck**, **mkdir**, **fstab**, and **mount**. If you are unfamiliar with repartitioning disks or creating file systems, contact a knowledgeable system administrator.

On your worksheet, indicate whether your system meets this requirement. If you check *no*, you need to increase the disk partition.

RAM

CiscoWorks requires a minimum of 64 MB of RAM. To find out how much RAM is available on your system, log in as superuser, then enter the following command:

```
hostname# /etc/dmesg | grep Kbytes
```

HP-UX displays information about your system's memory. The information includes a line similar to the following:

```
Memory Information:
Physical: 81920 Kbytes, lockable: 73384 Kbytes, available: 75188 Kbytes
```

The output indicates the amount of available RAM. On your worksheet, indicate whether your system has at least 64 MB of RAM. If you check no, you need to upgrade your memory.

Swap Space

CiscoWorks requires a minimum of 110 MB of swap space on your system, although for installations with more than 100 devices, 128 MB is recommended. To find out how much swap space you have, log in as superuser, then enter the following command:

```
hostname# swapinfo
```

HP-UX displays information about your system's swap space, like this:

```
             Kb      Kb      Kb   PCT  START     Kb
TYPE    AVAIL    USED    FREE  USED   LIMIT RESERVE  PRI  NAME
dev    101753   45929   55824   45%  923286       -    0  /dev/dsk/c201d6s0
dev    102444      44  102400    0%  923286       -    1  /dev/dsk/c201d5s0
```

The Kb Avail, Kb Used, and Kb Free fields indicate the amount of swap space that is available, used, and free on your system.

On your worksheet, indicate whether your system has at least 110 MB of swap space. If you check no, you need to upgrade. If the swap space on your system is less than 110 MB, expand the swap space by following the instructions in the publications that come with your HP workstation.

TFTP

After CiscoWorks is installed and configured, you can use several of its applications with the Trivial File Transfer Protocol (TFTP) to transfer configuration files between your system and other devices on your network that use SNMP.

The CiscoWorks installation script can set up the necessary TFTP directory and boot files so that you can use TFTP. On your worksheet, check yes if you want the installation script to set up a TFTP directory.

CD-ROM Drive

You can install CiscoWorks from a local or remote CD-ROM drive. On your worksheet, indicate which method you will use.

If you are planning to install CiscoWorks from a CD-ROM drive attached to a remote system, find out whether you have a login account as a superuser (in other words, *root*) on that system. If you do not have superuser access to the remote system, you can obtain it by contacting the system administrator of the remote system.

If you are installing CiscoWorks from a remote CD-ROM drive, obtain the complete host name of the remote system and make sure that this host name is listed in the */etc/hosts* file on your system.

On your worksheet indicate whether you have superuser access, and if you use a remote system, its host name.

.rhosts File

The *.rhosts* file enables users to log into another user account on a remote system. If you plan to 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 that your username is specified as superuser, access the *.rhosts* file by using a text editor such as *vi* or *vuepad*.

On your worksheet, indicate whether your host name is in the *.rhosts* file and your username is specified as a superuser.

Device Name

The installation script requires that you specify the device name of the CD-ROM drive. You can either obtain the device name from your UNIX system administrator or display the contents of the */dev/dsk* directory on your system by performing the following steps:

Step 1 Change to the */dev/dsk* directory by entering the following command:

```
hostname% cd /dev/dsk
```

Step 2 List the devices available to your system by entering the following command:

```
hostname% ls | more
```

A list of available devices displays on your monitor. CD-ROM drives usually have device names similar to *c9d0s2*, *c9d1s2*, and so on.

Step 3 To display the remainder of the list of devices, press the space bar.

If you cannot identify an appropriate device name for your CD-ROM drive, contact your UNIX system administrator for help in obtaining device information.

On your worksheet, specify the name of the device.

Type of Installation

Because you are installing CiscoWorks 2.1 on HP OpenView on HP-UX, you must perform a new installation. You do not have the option of migrating from an earlier version of CiscoWorks on SunNet Manager to CiscoWorks 2.1.

On your worksheet, check new to indicate that you will perform a new installation.

Directory Path Name for CiscoWorks

You must specify the directory where you want the CiscoWorks software to be installed. If the directory does not already exist on your system, the installation script creates the directory and installs the software in that directory. The default directory path name is */usr/nms*.

On your worksheet, indicate where the CiscoWorks software will be installed. If applicable, specify the directory path name you plan to use.

Selecting a Disk Partition for Sybase and Transaction Log Installation

The installation script allows you to specify the disk partition on which you want to install Sybase and the corresponding transaction log, or to accept the default *$NMSROOT*. Depending on your needs, you can share the Sybase installation across several disk partitions. In addition to choosing a location, you can specify the size of your database and transaction log.

Because the size of your particular database can vary, the installation program prompts you for how much space you want to allocate for Sybase and for the corresponding transaction log. For Sybase, specify a size that is at least 10 MB; or you can accept the default size of 50 MB. For the transaction log, specify a size that is at least 4 MB; or you can accept the default size of 10 MB.

After you specify a size and location for the disk partition, the installation script automatically checks to make sure you have the specified disk space before installing the database. If you do not have the disk space you requested, CiscoWorks automatically prompts you to select other partitions.

TACACS Information

CiscoWorks provides support for TACACS, an authentication protocol that requires users to supply a username and password in order to access Cisco devices.

Installing a TACACS Server

When prompted by the installation script, you must indicate whether your network system will be set up as a TACACS server. On your worksheet, indicate yes or no.

If you do not set up as a TACACs server, you may be unable to use several CiscoWorks applications.

Start TACACS Daemon During Installation

If you set up your network system as a TACACS server, the TACACS daemon startup facility will be automatically added to the */etc/rc* file. During installation, if you respond yes to set up a TACACS server, the TACACS daemon will start right away and will set the */etc/rc* file to start the TACACS daemon automatically when you restart the system. If you answer no, the TACACS daemon will still be added to your */etc/rc* file but will be commented out. On your worksheet, indicate whether you want this functionality.

TACACS Username

If you elect to set up a TACACS server, you need to supply a username when prompted by the installation script. The username you supply here is the one that is requested when a user attempts to remotely log in to manage Cisco devices.

Username Password

If you elect to set up a TACACS server, you need to supply a TACACS password. On your worksheet, indicate the password for the specified TACACS username.

Using Extended TACACS Mode

The TACACS extended account, named *$enable$*, is used to access routers that use the extended TACACS mode. For more information on the *$enable$* account, see the *CiscoWorks User Guide*. On your worksheet, indicate whether you want your system to run in extended TACACS mode.

Extended TACACS Mode Password

If you answered yes to accept an extended TACACS mode, you are then prompted to supply the password for the special TACACS *$enable$* account. On your worksheet, indicate the password that should be used for the extended TACACS user account.

CiscoWorks Configuration Worksheet

CONFIGURATION WORKSHEET		
Type of installation?	☐ new	
Directory in which CiscoWorks is installed?	☐ /usr/nms	☐ other _____
Directory in which Sybase is installed?	☐ /usr/nms	☐ 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?	☐ /usr/nms	☐ other _____
Type of shell for using CiscoWorks?	☐ /bin/csh	☐ other _____
CONFIGURING SYBASE		
Sybase user ID number?	☐ 101	☐ other _____
Sybase user name?	☐ sybase	☐ other _____
Sybase group ID?	☐ 55	☐ other _____
Sybase full name?	☐ Sybase	☐ other _____
Type of shell for Sybase?	☐ /bin/csh	☐ other _____
CONFIGURING LOG FILES AND FACILITIES		
Directory path name for HP Openview?	☐ /usr/OV	☐ other _____
Log file for CiscoWorks messages?	☐ /usr/OV/log/nmslog	☐ 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

This section explains each item on the Configuration Worksheet. This information is required for the configuration of 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 system manuals.

Type of Installation

If you are installing CiscoWorks 2.1 on HP OpenView on HP-UX, you are performing a new installation. Because you cannot upgrade or migrate from an older version of CiscoWorks to CiscoWorks 2.1, check *new* on the worksheet and enter *N* or *No* during the installation process.

Directory Where CiscoWorks Is Installed

By default, CiscoWorks is installed in the directory */usr/nms*, but you can specify another directory, if you choose. On your worksheet, check */usr/nms*, or enter another directory path.

Caution If you already have a directory named */usr/nms*, the CiscoWorks installation overwrites its contents. If you want to preserve the contents of the existing */usr/nms*, specify another directory name for installing CiscoWorks.

Directory Where Sybase Is Installed

By default, Sybase is installed in the same directory as CiscoWorks, */usr/nms*. You can specify another directory, if you choose. On your worksheet, check */usr/nms* or enter another directory path to record where the Sybase database is installed.

CiscoWorks Group Name

In order for CiscoWorks users to access and use CiscoWorks, they must belong to a group that is specified in the */etc/group* and the */etc/logingroup* files on your system. The configuration script prompts you to supply the group name you want to use for CiscoWorks users. The default name for the group is *CscWorks*.

On your worksheet, check *CscWorks* to accept the default, or specify a unique name for the CiscoWorks group.

Note While you are configuring CiscoWorks, you can add users to the */etc/group* and the */etc/logingroup* files by using an interactive display the configuration script provides. However, if you are running Network Information Services (NIS), you must update the files manually.

CiscoWorks Group ID

The CiscoWorks group has a unique ID number, in addition to a name. The default CiscoWorks group number is 55. You can specify a different group number, but you must first make sure that no other group specified in the */etc/group* file uses that number.

On your worksheet, select the default or specify a unique group ID number.

Note 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.

Usernames of Individuals

Before you add an individual user to the group, ensure the following:

- The user has a login account on the workstation.
- You have added the login account information to the */etc/group* and */etc/password* files.

For more information about creating login accounts, refer to the HP-UX system manuals. On your worksheet, enter the usernames for those users who have valid login accounts on your system and need to access CiscoWorks.

CiscoWorks Username

CiscoWorks itself has a username and login account on your system, which you must specify when the configuration script prompts you. Cisco recommends that you use the default username *cscworks*. The configuration script adds the CiscoWorks username to the */etc/passwd* file and the */etc/group* file.

On your worksheet, indicate that you accept the default username, or specify a unique username for CiscoWorks.

CiscoWorks User ID Number

CiscoWorks also has a unique user ID number that identifies it to HP-UX. The CiscoWorks user ID number is added to the */etc/passwd* file by the configuration script. The default user ID number for CiscoWorks is 100. If you want to specify a different user ID number, make sure that no other user already has that number.

On your worksheet, check *100* to accept the default number, or specify a unique user ID number.

CiscoWorks Login Account Name

Because CiscoWorks is a user on your system, you must specify its full name in the */etc/passwd* file, just as you specify the full names of other users there. The default full name is *CiscoWorks*, although you can specify a different full name if you choose.

On your worksheet, check *CiscoWorks* to accept the default name or specify a different name.

CiscoWorks Home Directory

Because CiscoWorks is a user on your system, it has a home directory, just as each user on your system has a home directory. The CiscoWorks home directory is usually the same directory in which CiscoWorks is installed.

By default, the CiscoWorks home directory is */usr/nms*. On your worksheet, check */usr/nms* to accept the default name, or specify a different home directory for CiscoWorks.

Type of Shell for Using CiscoWorks

As a user, you interact with the UNIX operating system by means of a shell. You use the UNIX shell for some CiscoWorks tasks that you perform at the UNIX prompt. By default, the configuration script starts the UNIX C shell (*/bin/csh*).

On your worksheet, check */bin/csh* to accept the default, or specify a shell of your choice.

Sybase User ID Number

Because Sybase is a user on your system, it must have a unique user ID number that is specified in the */etc/passwd* file. By default, the configuration script assigns the number 101. If you specify a different user ID number for Sybase, make sure that no other user login account uses it.

On your worksheet, check *101* to accept the default user ID number or specify a unique user ID number for Sybase.

Sybase User Name

Because Sybase is a user on your system, it must have a unique user name. By default, the configuration script assigns the user name *sybase*.

On your worksheet, check *sybase* to accept the default user name, or specify a unique user name. The configuration script adds the user name to the */etc/passwd* and the */etc/group* files.

Sybase Group ID

The Sybase group, which is added to the */etc/group* file by the configuration script, must be assigned a unique group ID number. The configuration script proposes the default group ID number *55*.

On your worksheet, check *55* to accept the default group ID number, or specify a number that is not already in use and entered in the */etc/group* file.

Sybase Full Name

Because Sybase is a user on your system, it must have a full name specified in the */etc/passwd* file. On your worksheet, check *Sybase* to accept the default Sybase full name, or specify a different full name for the Sybase login account.

Type of Shell for Sybase

The C shell (*/bin/csh*) is the default shell you use for Sybase-related tasks that are performed at the UNIX prompt.

On your worksheet, check */bin/csh* to accept the default shell, or specify a shell of your choice.

Directory Path Name for HP OpenView

By default, HP OpenView is installed in the directory */usr/OV.* Verify the directory in which HP OpenView is installed on your system. If it is installed in the */usr/OV* directory, check */usr/OV* on your worksheet. Otherwise, specify the directory in which it is installed.

Log File for CiscoWorks Messages

The CiscoWorks Log Manager application adds messages to a centralized log file, */usr/OV/log/nmslog*. If you want the messages to be logged to a different file, you can specify a different filename.

On your worksheet, check */usr/OV/log/nmslog* to accept the default log file, or specify a different filename where the messages can be logged.

Syslog Facility for CiscoWorks Messages

The CiscoWorks Log Manager application uses a centralized log file that gets messages from the UNIX *syslogd* process. The default facility is *local7*.

If you want to log both CiscoWorks messages and Cisco device messages and view them through the Log Manager application, use the default facility *local7*. Cisco routers 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 will be stored in the *$NMSROOT/etc/nms.rc* file. For instructions on performing these tasks, refer to the *CiscoWorks User Guide*.

On your worksheet, check *local7* to accept the default facility, or specify a facility of your choice.

Erasing Applications That Use the syslog Facility

The configuration script asks you whether it can erase any other applications that are using this facility. If you answer *no*, the CiscoWorks log utility might not be able to use the *syslog* facility to do the following:

- Transfer or exchange information such as error messages.
- Receive extraneous messages in the CiscoWorks Log Manager.

On your worksheet, indicate whether you want the script to erase applications using the facility.

Enabling the CiscoWorks Log Purging Utility

CiscoWorks contains a centralized log file called *nmslog*. This log file can be automatically purged and backed up every day. As a result, the log purging utility is started automatically by the UNIX **cron** daemon. A *daemon* is a UNIX process that repeatedly runs in the background, independent of any user's workstation or terminal.

On your worksheet, indicate whether you want the *nmslog* file to be purged and backed up automatically.