

Updating Software

This appendix describes procedures to update software on the WS-C1400 Concentrator. New software to implement enhancements, such as changes to the emerging SMT standard, will be provided periodically.

Following are two ways you can update the software:

- Use Kermit (popular public-domain software) to transfer the software from a PC or workstation attached to the concentrator using the admin. port.
- Perform a network download from the concentrator through a download server.

Software updates will be distributed on Sun- and PC-compatible 3.5-inch disks. Use the procedures in this appendix to copy the software from the disks and download the software from the workstation to the concentrator.

Local File Transfer with Kermit

This section describes procedures for copying the software to a local workstation or PC then downloading it to the concentrator using Kermit.

Copy the Software to the Workstation or PC

To copy the software to the workstation or PC, log in as root and perform the following procedures:

- Step 1** Connect a workstation serial port to the concentrator admin. port as described in the chapter “Connecting to the Network.” Make sure you know the baud rate of the concentrator so you can set the line speed on the workstation accordingly.

Local File Transfer with Kermit

Step 2 Insert the 3.5-inch software update disk into the floppy drive on the workstation.

Step 3 On Sun workstations, enter the following commands:

```
cd /tmp
tar -xvfp /dev/rfd0
```

The first command changes your working directory to /tmp, and the second command copies the files from the disk to the /tmp directory. The following message displays while the files are being copied, where xx in the file name is the software revision number:

```
x conxx.rom 40960 Bytes, 80 tape blocks 1
```

The number of bytes and tape blocks that display may be different.

On PCs, enter the following commands, where x is the disk drive containing the floppy:

```
copy x:*. *
dir c1400*.rom
```

The **dir** command displays the filename of the new software in the format c1400xx.rom, where xx is the software revision number.

Set Kermit Parameters

To set the Kermit file transfer parameters, perform the following tasks:

Step 1 Start Kermit on the workstation or PC.

Step 2 At the Kermit> prompt, specify the serial port.

On **Sun workstations**, log in as root and enter the following command, where x is **a** or **b**, depending on which port you connected to the concentrator:

```
Kermit> set line /dev/ttyx
```

On **PCs**, use the following command, where x is the serial port number (1 through 8) that you connected to the concentrator:

```
Kermit> set port comx
```

Step 3 At the `Kermit>` prompt, enter the following command to set the baud rate for the serial port, where `n` is the port speed of the concentrator:

```
Kermit> set speed n
```

The default port speed for the concentrator is 9600 baud.



Caution To prevent communication problems, do not use a speed greater than 19200 baud.

Note To change the line speed for the file transfer, first use the **set baud** command on the concentrator, then escape back to Kermit to execute a **set speed** command. See the appendix “Command Reference” for a complete description of these commands.

Downloading the New Software to the Concentrator

Use the following procedure to download the software from the workstation.

Step 1 At the `Kermit>` prompt, enter the following command to connect to the concentrator:

```
Kermit> connect
```

If your line and speed are set correctly, the console prompt will be displayed.

Step 2 Enter **enable** to enter privileged mode.

```
Console> enable
Enter password:
Console> (enable)
```

Step 3 At the Kermit prompt, enter the download command:

```
Console> (enable) download serial
```

Local File Transfer with Kermit

Note Entering this command will take the concentrator out of service and affect your network. Be sure the software is on a local workstation (connected directly to the concentrator) and not on a Network File System (NFS) mounted partition.

Step 4 After you press <Return>, the concentrator will wait for the new software to arrive. The following message displays:

```
Concentrator Boot ROM (Ver 2.00)
Waiting for DOWNLOAD!!
Return to your local machine by typing its escape
sequence. Issue kermit send command from there [Send 'Filename']
```

Step 5 On **Sun workstations**, enter the escape sequence **Ctrl-\-c**

To enter this sequence correctly, hold down the Control key while you press \ and press c.

On **PCs**, enter the escape sequence **Esc-Ctrl-]-c**

To enter this sequence correctly, press **Esc**, then hold down the Control key while you press] and then press c.

Step 6 At the `Kermit>` prompt, enter the following command to send the file to the concentrator (where `xx` is the software revision number):

```
Kermit> send C1400_XX.rom
```

Note During the download, the 1/A and 2/B LEDs on the front panel of the concentrator alternately flash green. Also, the traffic meter LEDs increment in binary counter fashion for each packet received by the concentrator.

On **Sun workstations**, a dot appears on the screen for every four packets transferred. Other letters appear if Kermit has trouble transferring the file. You can monitor the progress of the download by typing **a** any time during the Kermit download.

Note If errors appear during the Kermit download, see the Kermit help information for an explanation of the errors and retry the download.

When the file transfer is finished, the `Kermit>` prompt returns, you will hear a beep, and the following message appears on the screen:

```
ZB [OK]
```

Step 7 On **PCs**, a screen similar to the following, appears displaying the send status information:

```
File name: C1400_xx.rom
KBytes transferred:
Percent transferred:
Sending:

Number of Packets:
NUmber of retries:
Last error: None
Last warning: None
```

Wait while the file is being transferred. The information will change in the display until the following information appears in the send status screen:

```
File name: C1400_xx.rom
KBytes transferred: xxxx
Percent transferred: 100%
Sending: Complete

Number of Packets: xxxx
NUmber of retries: None
Last error: None
Last warning: None
```

```
Kermit>
```

Local File Transfer with Kermit

Step 8 On **PCs**, when the Kermit> prompt reappears, enter **connect** to return to the console prompt.

```
Kermit> connect
```

On **Sun workstations**, the following message displays at the end of the download if the file transfer was successful:

```
Download OK
```

If the file transfer was not successful, the following message displays and you must repeat the procedure:

```
Download Not OK
```

Note If you do not return Kermit to terminal emulation mode immediately after the download has completed, you may not see Kermit messages.

Step 9 Reboot the concentrator to initialize Flash memory.

If the file transfer was successful, the concentrator erases Flash memory and reprograms it with the new software. The following messages display during the process:

```
Initializing flash...Erasing Flash...Done
Programming Flash
Base...Code...Length...Time...Done
```

Step 10 The switch will automatically reboot the concentrator to initialize Flash memory.

If the concentrator successfully reprograms Flash memory, the new software will execute as follows:

```
Cisco Systems Console
Enter password:
Wed Tue May 10, 1994, 17:35:08
Enter password:
```

This concludes the download procedure; the concentrator is now executing the new software. You can check the Sw field in the **show system** command display to verify that the new software is running.

On page B-6 the section, "Example of a Successful Download" has been modified.

Example of a Successful Download

The following screen shows an example of a complete download procedure. Commands you enter appear in **boldface screen font**.

On **Sun workstations**, the download procedure is as follows:

```
workstation% cd /tmp
workstation% tar -xvfp /dev/rfd0
x c1400.xx.rom, 1933 bytes, 4 tape blocks 1
workstation% kermit
C-Kermit, 4C(057) 31 Jul 85, 4.2 BSD
Type ? for help
C-Kermit> set line /dev/ttya
C-Kermit> set speed 19200
C-Kermit> connect
Connecting to /dev/ttya, speed 19200.
The escape character is ^\ (ASCII 28).
Type the escape character followed by C to get back,
or followed by ? to see other options

console> enable
Enter Password:
console> (enable) download serial
Return to your Local Machine by typing its escape sequence
Issue Kermit send command from there [Send 'Filename']
WAITING FOR DOWNLOAD!!

<CONTROL-\ c to return to Local Machine>

C-Kermit> send c1400_xx.rom
SF
c1400_xx.rom => c1400_xx.ROM, Size: 806306

X to cancel file, CR to resend current packet
Z to cancel group, A for status report
```

Local File Transfer with Kermit

```
E to send error packet, Ctrl-C to quit
immediately:.....

*** Display Truncated ***

.....[OK]
ZB
Kermit> connect
Connecting to /dev/ttya, speed 19200.
The escape character is ^\ (ASCII 28).
Type the escape character followed by C to get back,
or followed by ? to see other options

Download OK
Initializing flash
Programming Flash
Base....Code....Length....Time....Done

Cisco Systems Tue May 10, 1994, 17:35:08
Enter password:
```

On PCs, the download procedure is as follows:

```
C:\> copy A:\*.*
copying c1400_xx.rom
C:\> kermit
Kermit, 4C(057) 31 Jul 85, 4.2 BSD
Type ? for help
Kermit> set port com1
Kermit> set speed 9600
Kermit> connect
Connecting to com1, speed 9600.
The escape character is ^\ (ASCII 28).
Type the escape character followed by C to get back,
or followed by ? to see other options
Console> enable
Enter password:
Console> (enable) download serial
Return to your Local Machine by typing its escape sequence
Issue Kermit send command from there [Send 'Filename']
WAITING FOR DOWNLOAD!!

<CONTROL-\ c to return to Local Machine>

Kermit> send c1400_xx.rom
```


Network Download Initiated from the Concentrator

```
File name: c1400_xx.rom
KBytes transferred: xxxx
Percent transferred: 100%
Sending: Complete

Number of Packets: xxxx
Number of retries: None
Last error: None
Last warning: None
```

Kermit>

```
Cisco Systems Tue May 10, 1994, 17:35:08
Enter password:
```

Network Download Initiated from the Concentrator

The following procedure describes how to perform a network download from the concentrator.

Note The workstation acting as the download server must have the TFTP daemon set up. On Sun workstations, make sure the `/etc/inetd.conf` file contains the following line:

```
tftp dgram udp nowait root /usr/etc/in.tftpd in.tftpd -p -s /tftpboot
```

Network Download Initiated from the Concentrator

You must restart the inet daemon after modifying the inetd.conf file. To restart the daemon, either kill the inetd process and restart it, or do a **fastboot** on the Sun workstation. Then perform the following steps:

- Step 1** Copy the new software from the floppy to the tftpboot directory on the workstation. If this directory does not exist, you must create it first. The file you copy is c1400_xx.net, where xx is the software revision number.
- Step 2** Log in to the admin. interface on the concentrator.
- Step 3** Enter the **download** command, and specify the IP address or host name of the workstation acting as the download server and the file to download. Following is an example:

```
Console> download 190.180.122.40 c1400_22.net
```

During the download, the status LED on the concentrator flashes and the ring remains operational. When the download completes, the concentrator restarts automatically, causing the ring to go down momentarily. When the concentrator is up, use the **show system** command to check the version number of the software you are running.