

Chapter 2

First-Time Startup

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This chapter describes the activities associated with initial startup of a Cisco terminal server. In general, startup involves some rudimentary configuration of addresses, names, passwords, and other common system parameters. The following information is included:

- An introduction to the **setup** command facility
- A step-by-step discussion of the initialization process
- A sample script of an initial configuration session using **setup**

Note: Before starting up your machine, you should familiarize yourself with the attributes that are defined with the **setup** facility. Review this chapter *before* starting up your system. If you want to develop more specific controls, review the chapter, “Configuring the System.” You should also be familiar with the basics of using a Cisco terminal server before attempting any configuration or management activities. The next chapter, “Using the Terminal Server,” provides information about accessing different operational modes and making connections with Cisco terminal servers.

The Setup Command Facility

The **setup** command facility enables you, the network administrator, to start using your Cisco terminal server quickly and without extensive background knowledge. It does this by prompting you for the information required to perform basic configuration procedures. The **setup** command facility is available on all Cisco routers, terminal servers, and protocol translators with Release 8.2 or later software.

Use the **setup** facility both at initial system configuration and for basic changes at any time. In addition, the facility itself is a teaching tool that aids in familiarizing you with the expected command sequence as you step through the process. Because of these unique characteristics, Cisco refers to **setup** as a *command facility* rather than simply as a command.

Using the Setup Command Facility

You can use the **setup** command facility to configure system-wide (global) and interface-specific characteristics. The configuration activities associated with the **setup** process are outlined below:

Global configuration activities available with **setup**:

- Establishing host names
- Setting privileged level passwords
- Setting virtual terminal passwords
- Enabling SNMP network management
- Configuring XRemote server location

Interface-specific configuration activities handled with **setup**:

- Configuring the Internet Protocol (IP)
- Enabling the DEC LAT protocol
- Enabling the DEC MOP protocol

For more advanced applications, you must enter a privileged level configuration session.

Preparation

The **setup** command facility operates automatically the first time you power up your terminal server. To use **setup** on subsequent occasions, you must invoke it as you would any other command, by typing it at the EXEC, privileged level, prompt (#). Your system will also automatically run the **setup** program when it cannot find its configuration in memory.

Before you start using the **setup** command facility, you need to do the following:

Step 1: Attach an RS-232 ASCII terminal to the system console port located at the rear of the Cisco server (front of the STS-10X).

Refer to the relevant *Cisco Hardware Installation and Reference* publication for details about cabling considerations and establishing electrical connections.

Step 2: Configure the terminal to operate at: 9600 baud, 8 data bits, no parity, 2 stop bits.

Step 3: Power up the terminal server (the **setup** program runs automatically for initial startup).

Note: Network connections are not required in order to effectively use the **setup** command facility.

The server will prompt you for specific parameters including network numbers, IP addresses, and subnet masks, when applicable.

Help Facility

At any time during use of the **setup** command facility, you may request help by typing a question mark (“?”) at a given prompt. If the prompt requires a “yes” or “no” answer, no further help is available. However, if the prompt offers a range of acceptable answers, the help facility will give you some guidance. For example, if you are prompted to select the number of bits in a subnet mask, the help facility might inform you that you can choose a decimal number between 0 and 16.

Default Values

For many of the prompts, default answers appear in square brackets following the question. These defaults are used when you answer the question by pressing the Return key. If the system was previously configured, the defaults that appear are the currently configured values. If this is the first time the system has been configured, the factory defaults are provided. If there is no factory default, as in the case of passwords, nothing is displayed after the question. In the descriptions that follow, the factory defaults are shown.

Running the Setup Command

The **setup** command knows what kind of network interface is installed and prompts for configuration information as appropriate.

Note: Once you start the **setup** command sequence, the system runs through the entire configuration process; you cannot quit the process. If you want to make a change or correct a mistake, press the Return key through the prompts, or answer “no” to each of the prompts; then enter **setup** to restart the command.

When you first power up your console and network server, a script similar to the following will appear on the screen. The first section of the script displays the banner information, including the software version:

```
TS Software (TS3-L), Version 8.3
Copyright (c) 1986-1991 by Cisco Systems, Inc.
Compiled Fri 14-Jun-91 11:21
```

The next portion of the display is a list of the installed hardware and software options. By reading the installed hardware, the system automatically presents the appropriate interfaces during the configuration process.

```
CSC3 (68020) processor with 4096K bytes of memory.  
1 MCI Controller  
1 Ethernet/IEEE 802.3 interface.  
96 terminal lines  
32K bytes of non-volatile configuration memory.
```

Note: The first two sections of the configuration script (the banner and the installed hardware) appear only at initial system startup. On subsequent uses of the **setup** command facility, interaction begins with the System Configuration Dialog message.

The System Configuration Dialog message and configuration steps automatically appear next, offering the prompts for which you'll provide the answers to configure your system. Press the Return key to accept the default settings (if any are available). The System Configuration Dialog message provides the following initial information:

```
      - System Configuration Dialog -  
At any point you may enter a question mark '?' for help.  
Refer to the 'Getting Started' Guide for additional help.  
Default settings are in square brackets '[' ]'.  
  
Continue with configuration dialog? [yes]:
```

Press the Return key to continue with the **setup** process; enter “no” to terminate the process at this point.

Note: The “Getting Started” guide referenced in the System Configuration Dialog message addresses procedures for router/bridge products. For terminal servers, all “getting started” activities are covered within this chapter.

The remainder of the script is the actual configuration process, with each prompt appearing automatically. The following discussion outlines each prompt provided during the **setup** process. A complete **setup** script is provided at the end of this chapter.

The Configuration Process

Configuration using the **setup** command facility is a two-step process:

- Step 1:** During the first step, you specify information on a global, or system-wide basis.
- Step 2:** The second step allows you to configure the network interface, based on the global information provided previously.

The step-by-step discussions that follow briefly define the global and interface parameters that can be set using the **setup** command facility.

Note: More advanced configuration activities must be addressed with specific configuration procedures as described in the “Configuring the System” chapter and protocol-specific chapters of this manual.

Configuring Global Parameters

The following global configuration activities are handled via the **setup** command:

- Defining host name
- Setting the enable password
- Setting the virtual terminal password
- Specifying SNMP use
- Defining XRemote font server(s)

Each step in the global configuration **setup** process is described sequentially in the descriptions that follow.

Enter host name:

Specify the name of the host computer for the network server. This host name is used in the system prompts. You must enter a host name in order to continue.

Help: Type a string, then press Return. A host name can consist of from 1 to 80 alphanumeric characters and is case-sensitive.

Enter enable password:

Your system has two levels of security: user and privileged. The commands available at the user level are a subset of those available at the privileged level. Because many of the privileged commands are used to set operating parameters, these are password-protected to prevent unauthorized use. This is accomplished by setting up an *enable* password.

An enable password allows a user access to the privileged command level. The password is case-sensitive. You must enter an enable password in order to continue.

Default: Blank initially

Help: Type a string, then press Return. An entry must be made in order to continue with configuration.

An enable password can consist of from 1 to 80 upper-and lower-case alphanumeric characters; a number cannot be the first character. Spaces are also valid password characters; for example, “two words” is a valid password. For more information, refer to the “Using the Terminal Server” chapter.

Enter virtual terminal password:

In addition to the enable password, each virtual terminal line may also have an individual password. By default, virtual terminals require a password. If you do not set a password, the system will respond to attempted connections by displaying an error message and closing the connection. (Virtual terminals are used when remotely accessing the terminal server via the network.)

The virtual terminal password is case-sensitive. If desired, you can allow line connections without a password. Refer to “Establishing Line Passwords” in this manual for more information.

Default: Blank initially

Help: Type a string, then press Return.

A virtual terminal password can consist of from 1 to 80 upper-and lower-case alphanumeric characters; a number cannot be the first character. Spaces are also valid password characters; for example, “two words” is a valid password.

Configure SNMP Network Management? [yes]:

The Simple Network Management Protocol (SNMP) is the most widely supported open standard for network management. It provides a means to access and set configuration and runtime parameters of the routers and terminal servers. SNMP defines a set of functions that may be used to monitor and control network elements. Answer “yes” to configure SNMP on a system-wide basis. Refer to “Configuring the Simple Network Management Protocol” in the “Configuring the System” chapter for details about specific SNMP parameters.

Answer “no” if you do not want to run SNMP.

Note: SNMP is configured on a global basis only; it cannot be specified per individual interface.

Default: Yes

Configure XRemote font servers? [yes]:

Cisco supports the Network Computing Device, Inc. XRemote feature on all terminal servers and protocol translators. When fonts used by X applications are not included in ROM on the NCD terminal, one or more font servers must be identified from which the

terminal server and the NCD terminal can obtain non-ROM fonts. Answer “yes” to specify one or more XRemote font servers. Refer to the “Configuring XRemote” chapter for details about specific XRemote parameters.

Answer “no” if you do not want to specify XRemote font servers.

Default: Yes

Enter a font server IP address or press RETURN to exit:

Font servers must be reachable and IP-addressable entities. In order to obtain fonts from a specific host (or hosts), you must enter the IP address(es).

Enter the Internet address of the font server in dotted decimal form (for example, 131.108.2.5). If you do not know the Internet address, consult your network manager.

Note: Refer to the next section for details concerning IP address conventions.

This step is equivalent to specifying the IP address of a font server when using the **xremote tftp host** global configuration command. However, a host name cannot be entered when **setup** is running, since the name service facility is not yet running. Refer to the “Configuring XRemote” chapter of this manual for more details about XRemote configuration options.

Respond to the prompt by pressing Return to stop entering font server IP addresses.

Default: None

Help: Enter an Internet address of the form “X.X.X.X”, where each letter corresponds to a decimal number between 0 and 255.

Configuring Interface Parameters

The following interface configuration activities are handled via the **setup** command:

- Defining an IP address for the network interface port
- Establishing a subnet mask
- Setting the enable password
- Activating DEC LAT protocol
- Activating DEC MOP protocol

Each interface configuration step in the **setup** process is described sequentially in the descriptions that follow.

Note: When a new interface is added, the **setup** command facility only prompts for information regarding the new interface. The rest of the configuration is left intact.

Configuring interface Ethernet0:

The **setup** command facility automatically presents the installed interface for you to configure.

Note: For terminal servers that have a serial network or Token Ring interface, rather than an Ethernet interface, the initial prompt specifies that port (instead of an Ethernet port); otherwise the interface configuration steps for the **setup** command are the same as with an Ethernet interface.

IP address for this interface:

Internet addresses are 32-bit quantities assigned to hosts that use the TCP/IP protocols. These addresses are usually written as four decimal numbers separated by periods (for example, 192.17.5.100). Each number is an eight-bit value between 0 and 255.

The addresses are divided into three classes; the classes differ in the number of bits allocated to the network and host portions of the address.

The Class A Internet address format allocates the highest eight bits to the network field and sets the highest-order bit to 0 (zero). The remaining 24 bits form the host field.

The Class B Internet address allocates the highest 16 bits to the network field and sets the two highest-order bits to 1, 0. The remaining 16 bits form the host field.

The Class C Internet address allocates the highest 24 bits to the network field and sets the three highest-order bits to 1,1,0. The remaining eight bits form the host field.

Enter your Internet address in dotted decimal form (for example, 131.108.2.5). If you do not know your Internet address, consult your network manager.

Table 2-1 Summary of IP Address Fields

| Network Class | First Byte | Network Bits | Host Bits |
|----------------------|-------------------|---------------------|------------------|
| A | 1-126 | 8 | 24 |
| B | 128-191 | 16 | 16 |
| C | 192-223 | 24 | 8 |

Default: None

Help: Enter an Internet address of the form “X.X.X.X”, where each letter corresponds to a decimal number between 0 and 255.

Number of bits in subnet mask [0]:

Subnetting is an extension of the Internet addressing scheme, which allows multiple, physical networks to exist within a single Class A, B, or C network. The usual practice is to use a few of the leftmost bits in the host portion of the network address for a subnet field. The subnet mask controls whether or not subnetting is in effect on a network.

Internet addressing conventions allow either 24, 16, or 8 bits for a subnet mask, depending on whether your address is Class A, B, or C, respectively. However, because the last two of these bits are used for the host address, the **setup** command facility allows you to specify up to 22, 14, or 6 bits for your subnet mask.

A caveat applies to all classes of addresses: users may not specify “1” as a number of bits for the subnet mask. Such a specification would provide either an all zeros or all ones subnet mask, both of which are reserved by Internet conventions.

Default: 0

Help: A decimal number between 0 and 22, 14, or 6, depending on whether your network is Class A, B, or C, respectively.

Configure LAT on this interface? [yes]:

LAT is by default enabled on any network interface for a terminal server (if the LAT option has been purchased). Refer to “Making LAT Connections” in the “Configuring LAT” chapter for details about specific LAT parameters. Enter “yes” to enable LAT (or simply press Return).

Answer “no” if you do not want to enable LAT.

Default: Yes

Configure MOP on this interface? [yes]:

By default, all Cisco terminal servers support DEC’s Maintenance Operation Protocol (MOP), which allows remote access from DEC computers for maintenance purposes. By responding with a “yes” or pressing the Return key, MOP is enabled for the interface. Refer to “Using the DEC MOP Server” in the “Managing the System” chapter of this manual for details about Cisco’s support of the DEC MOP capabilities and related interface configuration commands.

Answer “no” if you want to completely disable DEC MOP on the interface.

Default: Yes

Use this configuration? [yes/no]:

The system requires that you provide an answer. Answering “yes” stores the configuration in non-volatile memory. Answer “no” and the configuration is not saved. This marks the end of the configuration process.

Default: None

Note: There is no default for this final prompt (requiring acknowledgment of acceptance or rejection of this configuration); you must answer either “yes” or “no” as to whether you will use this configuration.

Press RETURN to get started!

You are now ready to try using the other commands available to you, including the show and configure commands. To make changes to the configuration using the **setup** command facility, type **setup** at the EXEC prompt. Refer to the “Configuring the System” chapter and protocol-specific chapters of this manual for advanced configuration.

Configuration Script Sample

The following is a sample of a complete terminal server **setup** session, including the prompts provided after **setup** has terminated.

```
Would you like to enter the initial configuration dialog? [yes]:
Enter host name [TS]:trifid
Enter enable password:dancing
Enter virtual terminal password:arrow
Configure SNMP Network Management? [yes]:
Configure Xremote font servers? [yes]:
Enter a font server IP address or press RETURN to exit: 131.108.14.44
Enter a font server IP address or press RETURN to exit:

Configuring interface Ethernet0:
IP address for this interface:131.108.161.28
Number of bits in subnet field [0]:8
Class B network is 131.108.0.0, 8 subnet bits; mask is 255.255.255.0
Configure LAT on this interface? [yes]:
Configure MOP on this interface? [yes]:
```

The following configuration command script was created:

```
hostname trifid
enable password dancing
line vty 0 9
password arrow
snmp-server community
xremote tftp host 131.108.14.44
!
!
interface Ethernet0
ip address 131.108.161.28 255.255.255.0
lat enabled
mop enabled
```

end

Use this configuration? [yes/no]:**yes**

Press RETURN to get started!

[OK]

Use the enabled mode 'configure' command to modify this configuration.

trifid>

