CHAPTER 33

Configuring the AGM for the First Time

This chapter describes how to use the setup command facility to configure your Cisco Catalyst 4000 Access Gateway Module (AGM).

Note The setup command facility prompts you to enter information needed to quickly start the AGM functioning. The facility steps you through a basic configuration, including configuring LAN and WAN interfaces.

This chapter contains these major sections:

Preparing to Configure the AGM

This section contains information you need to be familiar with before you begin to configure your AGM for the first time, including interface numbering and steps to take before bringing your AGM online.

This section contains these subsections:

Booting the AGM

The factory configures the AGM to automatically load a Cisco IOS image the first time you insert the module into a Catalyst 4000 family switch. The software configuration register in the AGM determines where to find the image. The factory sets this register to load the IOS image into bootflash from configuration register 0x0101. This register enables autoboot at register 0x0103.

Table 33-1 shows the AGM default configuration.

Table 33-1 AGM Default Configuration

Feature	Default Value
Host name	Gateway
Interface configuration	None
VLAN configuration	None
Password encryption	Disabled
Break to console	Ignore

Accessing the AGM

This section describes how to access the AGM from Catalyst Operating System on Supervisor Engine I and II, and from Cisco IOS on Supervisor Engine III and IV.

Accessing the AGM from Catalyst Operating System

When the AGM finishes power-on self-test diagnostics, and the front panel status LED is green, you can access the module by entering the **session** *mod/num* command at the `Switch>` prompt. After you enter this command, the `Gateway>` prompt appears.

After booting the AGM for the first time, you can configure the interfaces, and then save the configuration to a file in NVRAM.

Accessing the AGM from Cisco IOS

In release 12.1(13)EW, it is not possible to access the AGM through any commands. Rather, a cable must be connected to the console port of the AGM. See Figure 33-1 on page 33-5.

Downloading an Image to Bootflash

This section describes how to download an image from bootflash from the Catalyst Operating System and from Cisco IOS.

Download an image from the Catalyst Operating System

If you have already configured the AGM, you can download a runtime image from a TFTP server on the network. To download an image from a TFTP server, no supervisor engine interaction is required. TFTP downloads can take place over the out-of-band Ethernet management port, or over the internal Gigabit Ethernet connections. To perform a network download over the internal Gigabit Ethernet connections, you must first bring up these ports and configure them.

Download an image from Cisco IOS

Note Before you can download an image, you must first configure the management port. See the"Configuring the Management Port" section on page 33-4.

If you have already configured the AGM, you can download a runtime image from a TFTP server on the network. To download an image from a TFTP server, no supervisor engine interaction is required. TFTP downloads can take place over the out-of-band Ethernet management port.

Configuring the Console Port

The console port mode switch allows you to connect a terminal to the AGM using either a Catalyst 5000 family supervisor engine III console cable or the console cable and adapters provided with a Catalyst 4000 family switch.

Note Use a paper clip or a small, pointed object to access the console port mode switch.

Use the console port mode switch as follows:

- Mode 1—Switch is in the (factory default) in position to connect a terminal to the console port using the console cable and data terminal equipment (DTE) adapter labeled Terminal that shipped with the switch.

  You can also use this mode to connect a modem to the console port using the console cable and data communications equipment (DCE) adapter (labeled "Modem") that shipped with the switch.
- Mode 2—Switch is in the out position to connect a terminal to the console port using the Catalyst 5000 Family supervisor engine III console cable (not provided).

Note In the Catalyst Operating System, you should not have to connect a terminal to the AGM console port.

When your terminal is connected to the supervisor engine I or II console port, use the **session** command to access the Layer 3 services module for Gateway configuration.

The console port allows you to access the AGM either locally (with a console terminal) or remotely (with a modem). The console port is an EIA/TIA-232 asynchronous, serial connection with an RJ-45 connector.

For complete console port cabling specifications and pinouts, refer to the *Catalyst 4000 Family Installation Guide*.

Note The accessory kit that shipped with your Catalyst 4000 family switch contains the cable and adapters to connect a terminal or modem to the console port. These cables and adapters are the same as those shipped with the Cisco 2500 series routers and other Cisco products.

Connecting a Terminal

To connect a terminal to the console port using the cable and adapters provided with the Catalyst 4000 family switch, ensure that the console port mode switch is in the in position (factory default). Connect to the port using the RJ-45-to-RJ-45 cable and RJ-45-to-DB-25 DTE adapter or RJ-45-to-DB-9 DTE adapter (labeled "Terminal").

To connect a terminal using a Catalyst 5000 Family supervisor engine III console cable, place the console port mode switch in the out position. Connect to the port using the Catalyst 4000 family supervisor engine III cable and the appropriate adapter for the terminal connection.

Check the documentation that came with your terminal to determine the baud rate. The baud rate of the terminal must match the default baud rate (9600 baud) of the console port.

Set up the terminal as follows:

- 9600 baud
- 8 data bits
- No parity
- 1 stop bit
- No flow control

Connecting a Modem

To connect a modem to the console port, ensure that the console port mode switch is in the in position (factory default position). Connect the modem to the port using the RJ-45-to-RJ-45 cable and the RJ-45-to-DB-25 DCE adapter (labeled "Modem").

Configuring the Management Port

You can manage the AGM through the 10/100 management port by assigning it an IP address.

Caution By default, the Fast Ethernet interface does not route data traffic. We do not recommend that you override this default configuration.

The supervisor engine reports one IP address assigned to the AGM that can be used for network management through the Cisco Stack MIB.

If the Ethernet 10/100 management port is up and an IP address has been configured, the AGM selects the IP address assigned to the 10/100 Ethernet management port. If the management port is down or an IP address has not been configured, the AGM randomly selects an IP address that has been assigned to one of the Gigabit Ethernet ports or port channels as the network management IP address, provided the interface or subinterface associated with this IP address is up at the time of selection.

If the selected network management IP address is removed or the interface or subinterface associated with this IP address is shut down, the AGM selects another IP address as a replacement.

If all the interfaces are down or no IP address has been assigned to any interface or subinterface that is up, the IP address for network management is 0.0.0.0.

After each IP address selection or change of the IP address, the AGM sends an unsolicited message to the supervisor engine, which then populates the IP address attribute of the Cisco Stack MIB entry of the AGM.

Understanding the Interface Numbering

The AGM has three slots in which you can install interface cards:

- Slot 1 supports voice interface cards (VICs), WAN interface cards (WICs), and voice and WAN interface cards (VWICs).
- Slot 2 supports voice interface cards (VICs), WAN interface cards (WICs), and voice and WAN interface cards (VWICs).
- Slot 3 supports only VICs and VWICs (no WICs).
- Slot 4 is reserved for the 8-port RJ21 FXS module.

Each individual interface is identified by a slot number and a port number. The slots are numbered as follows:

- Slot 0 supports the following main board embedded interfaces:
  - Console port (con 0)
  - Ethernet Management port (Fast Ethernet 0/0)
  - Gigabit Ethernet backplane connection (Gigabit Ethernet 0/0:S)
- Slot 1 ports are numbered from right to left (1/1 and 1/0)

Note On the WIC-2A/S, the top slot is 0 and the bottom slot is 1.

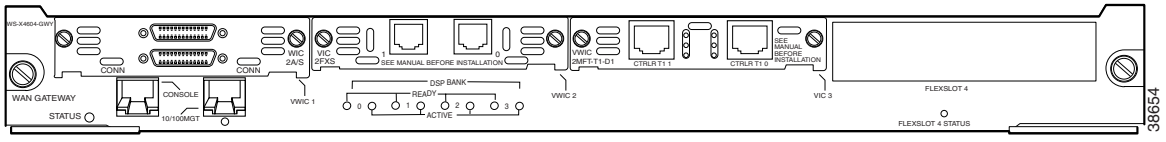
- Slot 2 ports are numbered from right to left (2/1 and 2/0)
- Slot 3 ports are numbered from right to left (3/0 and 3/1)
- Slot 4 ports (on the 8-Port FXS module) are sequentially numbered from right to left, starting with 0 for the right-most port. As the 8-port FXS module is located in slot 4, the eight ports are numbered 4/0 to 4/7.

When you configure an interface, identify the interface name before the slot and port numbers. For example, if you install a serial T1 VWIC interface in slot 2, port 0 would be labeled as serial 2/0.

The Gigabit Ethernet port interface name, slot, and port number are gigabit-ethernet 0/0:S. The *S* represents the possible subinterfaces, which could be one of six VLAN connections.

Figure 33-1 shows the AGM front panel.

Figure 33-1 AGM Front Panel



Using the Cisco IOS CLI

Cisco voice gateways run versions of the Cisco IOS software that includes specialized adaptations for Voice over IP (VoIP) and Media Gateway Control Protocol (MGCP). If you are familiar with other versions of Cisco IOS, you will find configuring Cisco voice gateways straightforward because you will use the Cisco IOS CLI, with which you are familiar.

If you have never used the Cisco IOS CLI, you should still be able to perform the configuration required using the instructions and examples provided in this guide. To help get you started, this section provides a brief overview of some of the main features of the CLI. For more information, refer to the Cisco IOS configuration guides and command references.

This section contains these topics:

Getting Help

Use the question mark (?) and arrow keys to help you enter commands, as follows:

- For a list of available commands, enter a question mark, for example:

  ```
  Gateway> ?
  ```

- To complete a command, enter a few known characters followed by a question mark (with no space), for example:

  ```
  Gateway> s?
  ```

- For a list of command variables, enter the command followed by a space and a question mark, for example:

  ```
  Gateway> show ?
  ```

- To redisplay a command you previously entered, press the **Up Arrow** key. You can continue to press the **Up Arrow** key for more commands.

Command Modes

The Cisco IOS interface is divided into different modes. Each command mode permits you to configure different components on your gateway. The commands available at any given time depend on which mode you are currently using. Entering a question mark (**?**) at the prompt displays a list of commands available for each command mode. Table 33-2 lists the most common command modes.

Table 33-2 Common Command Modes

Command Mode	Access Method	Gateway Prompt Displayed	Exit Method
User EXEC	Log in.	`hostname>` The default is `Gateway>`	Use the **logout** command.
Privileged EXEC	From user EXEC mode, enter the **enable** command.	`hostname#` The default is `Gateway#`	To exit to user EXEC mode, use the **disable**, **exit**, or **logout** command.

Global configuration	From the privileged EXEC mode, enter the **configure terminal** command.	`hostname (config)#`
		The default is
		`Gateway(config)#`
			To exit to privileged EXEC mode, use the **exit** or **end** command, or press **Ctrl-Z**.

Table 33-2 Common Command Modes

Command Mode	Access Method	Gateway Prompt Displayed	Exit Method
Interface configuration	From the global configuration mode, enter the **interface** *type number* command, such as **FastEthernet int 0/0**.	`hostname (config-if)#` The default is `Gateway(config-if)#`	To exit to global configuration mode, use the **exit** command. To exit directly to privileged EXEC mode, press **Ctrl-Z**.
Dial-peer configuration	From the global configuration mode, enter the dial-peer voice command, such as **dial-peer voice 1 pots/voip.**	`hostname(config-dial-peer)` The default is `Gateway(config-dial-peer)#`	To exit to global configuration mode, use the **exit** command. To exit directly to privileged EXEC mode, press **Ctrl-Z**.

Timesaver Each command mode restricts you to a subset of commands. If you are having trouble entering a command, check the prompt and enter the question mark (**?**) for a list of available commands. You might be in the wrong command mode or using the wrong syntax.

In the following example, which uses the default prompt (Gateway>), notice how the prompt changes after each command to indicate a new command mode:

```
Gateway> enable
Password: <enable password>
Gateway#configure terminal
Gateway(config-if)# line 0
Gateway(config-line)# controller t1 1/0
Gateway(config-controller)# exit
Gateway(config)# exit
Gateway#
%SYS-5-CONFIG_I: Configured from console by console
```

The last message is normal and does not indicate an error. Press **Return** to return to the prompt.

Note You can press **Ctrl-Z** in any mode to return immediately to privileged EXEC mode (`Gateway#`), instead of entering **exit**, which returns you to the previous mode.

Disabling a Command or Feature

If you want to undo a command you entered or disable a feature, enter the keyword **no** before most commands; for example, **no mgcp**.

Saving Configuration Changes

You need to enter the **copy running-config startup-config** command to save your configuration changes to nonvolatile random-access memory (NVRAM), so the changes are not lost if there is a system reload or power outage. For example:

```
Gateway# copy running-config startup-config
Building configuration...
```

Note It might take a minute or two to save the configuration to NVRAM. After the configuration has been saved, the privileged EXEC mode prompt (`Gateway#`) reappears.

Interface Configuration Examples

To configure the AGM interfaces, you can use the setup command facility and automate the process. If you need interface configuration examples for using the setup command facility, go to the following url:

http://www.cisco.com/en/US/partner/products/hw/routers/ps259/products_configuration_guide_chapter09186a008007e60a.html#32818