ADTRAN Operating System

Upgrading Firmware in AOS

Configuration Guide

61200990L1-29.1F
June 2020

To the Holder of this Document

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Revision History

Rev F	June 2020	Removed sections pertaining to upgrading firmware using the USB port.Removed sections pertaining to the RAM Disk files system as this is no longer available in AOS. Content was reformatted into this template.

Table of Contents

1. Overview

This configuration guide explains how to update your ADTRAN Operating System (AOS) firmware using the AOS Web-based graphical user interface (GUI) with Trivial File Transfer Protocol (TFTP) TFTP, Hypertext Transfer Protocol (HTTP), HTTP Secure (HTTPS), File Transfer Protocol (FTP), and XMODEM. Also included in this guide are instructions for upgrading a unit using AOS bootstrap mode.

> **i** **NOTE**
>
> *While upgrading your AOS firmware, it is recommended that you keep a backup of the current firmware in memory whenever possible.*

2. Upgrading AOS Firmware Using the GUI

When upgrading the system firmware on an AOS unit using the GUI, the new firmware must be downloaded to your PC, uploaded to the AOS unit, and the AOS unit rebooted. The following sections describe how to upgrade AOS firmware using the GUI.

> **i** **NOTE**
>
> *The GUI is not available on all AOS versions. Refer to the quick start guide shipped with your unit to determine whether the GUI is supported.*

Accessing the GUI

You can access the GUI from any Web browser on your network by following these steps:

1. Connect the AOS unit directly to your PC using the primary Ethernet port and either a cross-over or straight-through Ethernet cable. Refer to the quick start guide shipped with your unit for details on connecting to your PC.

2. For newly installed units, set your PC to a fixed IP address of **10.10.10.2**. To change your PC IP address, navigate to **PC > Control Panel > Network Connections > Local Area Connection > Properties > IP (TCP/IP)** and select **Use this IP Address**. Enter the following parameters:

   IP Address: **10.10.10.2**
   Subnet Mask: **255.255.255.0**
   Default Gateway: **10.10.10.1**

3. You do not need to enter any domain naming system (DNS) server information. After the information is entered, select **OK** twice, and close the **Network Connections** dialog box. If you cannot change your PC's IP address, you will need to change the AOS unit's IP address using the CLI. Refer to *Step 2: Accessing the CLI on page 13* for instructions.

4. Open a Web browser and enter the AOS unit's IP address in your browser address line as follows: **http://10.10.10.1**. The default IP address is **10.10.10.1**, but if you had to change the AOS unit's IP address using the CLI, enter that address in the browser line.

5. At the prompt, enter your user name and password and select **OK**.

> **i** **NOTE**
>
> *The default user name is **admin** and the default password is **password**.*

6. The initial GUI menu appears. You can access initial setup information by selecting **Setup Wizard** from the menu on the left.

Reviewing the Current Firmware

You should review and record the name of the existing primary firmware file. To review the existing firmware on your AOS unit, follow these steps:

1. In the GUI menu on the left, navigate to **Utilities > System > Firmware**.

2. Review the firmware currently in use in the **Primary/Backup Firmware** section. This section also lists the amount of free drive space on the AOS unit.
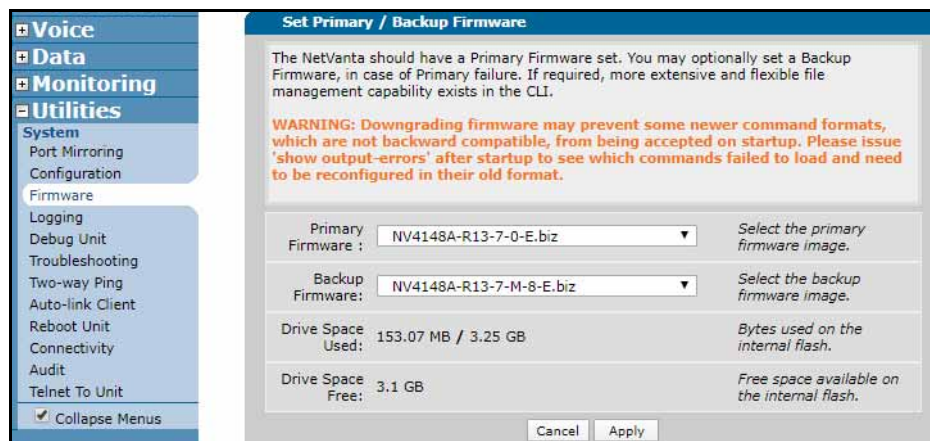
Deleting Unused Firmware Files

If there is not enough free drive space on the AOS unit, you can delete the backup firmware file to make room for the firmware update. To delete the backup firmware file, follow these steps:

1. In the GUI menu on the left, navigate to **Utilities > System > Firmware**.

2. Scroll to the **Delete Firmware** section.

3. Use the drop-down menu to select the firmware file you want to delete.

4. Select the **Delete** button.

Use the **Delete Firmware** drop-down menu to select the firmware to delete.

Select the **Delete** button.
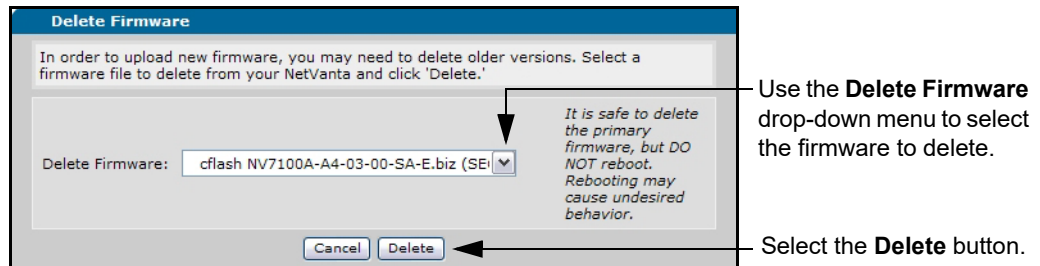
Obtaining a Firmware Update

To locate a firmware update and download it to your PC, follow these steps:

1. Open a session in a Web browser and enter the following URL in the address bar of the web browser:

   www.adtran.com/web/page/portal/Adtran/wp_support_softwarereleases

   You will be transferred to the **Software Downloads** page of the ADTRAN website.

2. In the **By Line** tab of the **Find Software for Product** section, use the drop-down menus to select your unit using the **By Product Line**, **By Family,** and **Select Product** drop-down menus. After you have selected your product, the **Find Software** button will appear.

Select the **By Line** tab

Select your unit's product

Select your unit's family.
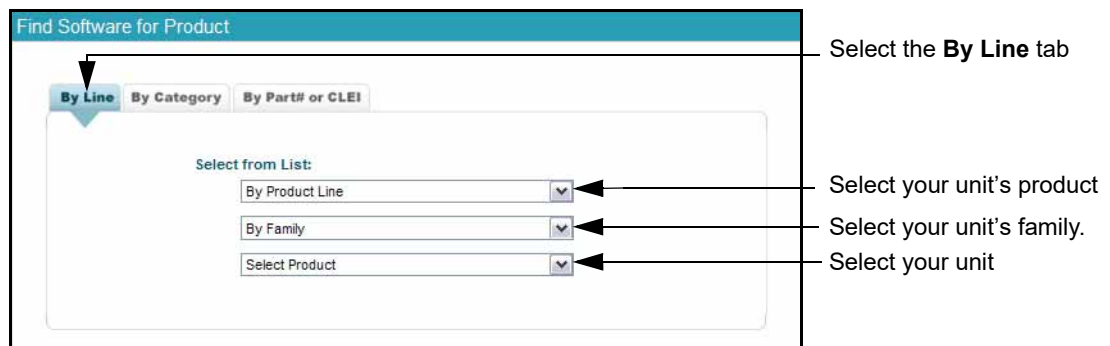
Select your unit

Additionally, you can use the drop-down menus in the **By Category** tab of the **Find Software for Product** section to select your product. Select your unit from the **By Category**, **By Sub-category**, and **Select Product** drop-down menus. After you have selected your product, the **Find Software** button will appear. You can also use the product's part number or common language equipment identification (CLEI) code to

find firmware for your product. Select the **By Part# or CLEI** tab, enter the part number in the **By Part Number** field or the CLEI in the **By CLEI** field, and select the **Find Product** button.



Select the **By Part# or CLEI** tab.

Enter the part number.

Enter the CLEI.

Select **Find Product** to search for your product.
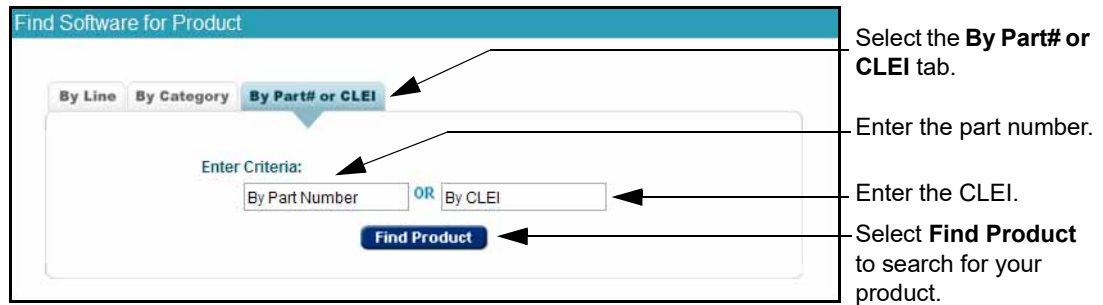
3. Once your product has been found, several links will appear at the bottom of the screen. Select the firmware link (for example, **NetVanta 7100 Firmware**). If you are logged in to your ADTRAN.com account, you will be redirected to the **Software Download** page for the specified product.

Select the firmware link.
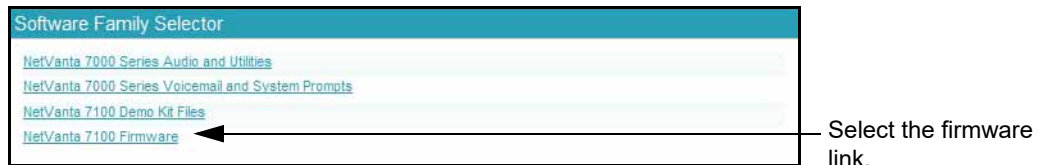
4. If you are not logged in to your ADTRAN.com account, you will be redirected to a login page. If you have an ADTRAN.com account, enter your login email address in the **Email** field and your login password in the **Password** field and select **Submit**.

   If you do not have an ADTRAN.com account, you can gain temporary access to the software downloads page. Enter your first name, last name, email address, ZIP code, and company (optional) in the appropriate fields in the **Instant Access** section, and select **Submit**.

5. Right-click the desired **Download** link, and select **Save target as** from the right-click menu. The **Save As** menu will appear.

6. Browse to the location on your PC where you would like save the firmware, and select **Save** to save the firmware.

> **i** **NOTE**
>
> *Do not change the firmware file's extension. The firmware file must maintain the **.biz** file extension in order for the AOS unit to recognize it as a valid firmware file.*

Uploading a Firmware Update to the AOS Unit

Once you have downloaded the firmware update to your PC, you can upload it from your PC to the AOS unit's flash or CompactFlash® memory. For information on uploading firmware updates using the CLI, refer to *Upgrading AOS Firmware Using the CLI on page 10*.

1. In the GUI menu on the left, navigate to **Utilities > System > Firmware**.

2. Scroll to the **Upload Firmware** section.

3. Select the **Choose File** button next to the **Update Firmware** field. Browse to the directory on your PC containing the AOS firmware upgrade file.

Select the **Choose File** button to locate the AOS firmware upgrade
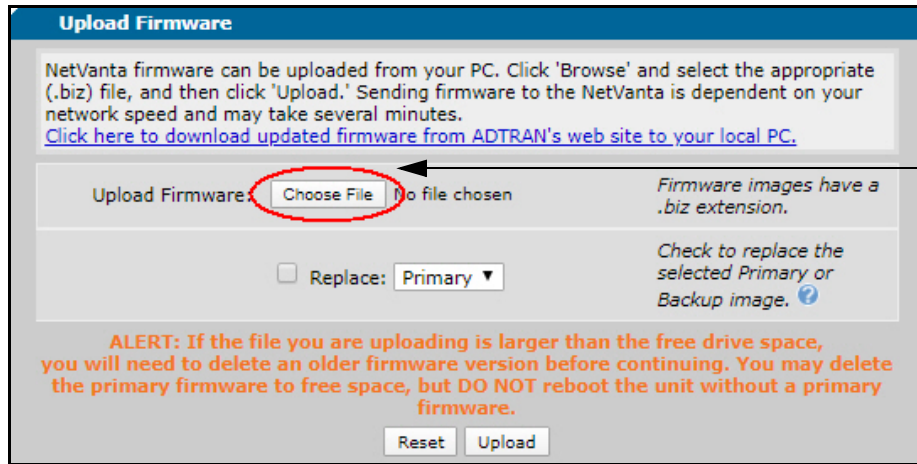
4. Select the firmware file (with a **.biz** extension), and then select **Open**. The directory location and file name should now be displayed in the **Update Firmware** field.

5. If you want to replace the primary or backup image with the firmware you are uploading, check the box to the left of **Replace** and select whether you want to delete the **Primary** or **Backup** image.

> **i NOTE**
>
> *If you need to delete firmware to free drive space, but you don't want to delete the current Primary or Backup image, you can select older versions of firmware to delete in the GUI section titled **Delete Firmware,** which is located below the **Upload Firmware** section.*

6. Select **Upload** to transfer the new firmware file to the AOS unit. This process can take several minutes. If there is insufficient memory on the AOS unit to upload the firmware update, you will receive an error message.You can delete the backup firmware file to make room for the new firmware file. Refer to *Deleting Unused Firmware Files on page 7* for instructions.

7. When the process is complete, scroll up to the **Primary/Backup Firmware** section and change the **Primary Firmware** selector to the newly uploaded firmware file using the drop-down menu. Set the **Backup Firmware** selector to the previous primary firmware file.
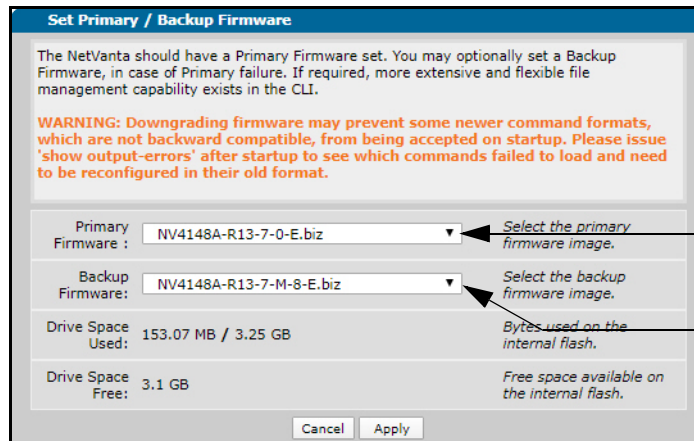
Change the primary firmware to the newly uploaded firmware.

Change the backup firmware to the previous primary firmware.

8. Select **Apply** to accept changes.

9. Navigate to **Utilities** > **Reboot Unit**. Then, select **Save and Reboot**. It is important to save any changes to the configuration before rebooting. If you reboot without saving the current configuration, and changes you have made will be lost during the reboot.

3. Upgrading AOS Firmware Using the CLI

When upgrading the system firmware on an AOS unit using the CLI, the AOS unit's current configuration can be downloaded from the AOS unit and the new firmware can be uploaded to the AOS unit using FTP, HTTP, HTTPS, TFTP, or XMODEM.

NetVanta products support firmware image updates via the Ethernet port using TFTP, HTTP, and HTTPS file transfer protocols and a network server. Firmware images are downloaded from a network server and configuration files are uploaded to a network server using TFTP, HTTP and HTTPS via the Ethernet port on the AOS unit.

FTP is one of the simplest ways to transfer files over the Internet. This transfer protocol uses Transmission Control Protocol (TCP) to transfer information. AOS products with firmware 4.x or later contain a built-in FTP server. In order to transfer files from your PC to the AOS unit using FTP, you must have FTP client software installed on your PC and ensure that your PC is on a LAN with the AOS unit.

XMODEM is a reliable file transfer method; however, because it uses the **CONSOLE** port for the transfer, it is the slowest method. You cannot use this method via Telnet; a serial connection to the router is required.

Firmware on an AOS unit is upgraded using the following steps:

Step 1: Preparing the AOS Unit for Upgrade on page 10

Step 2: Accessing the CLI on page 13

Step 3: Reviewing the Current Firmware on page 14

Step 4: Erasing Unused Firmware Files on page 15

Step 5: Saving the Running Configuration to Flash on page 15

Step 6: Saving a Copy of the Startup Configuration on page 16

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Step 8: Activating the Firmware on page 21

After firmware is uploaded to the AOS unit, it must be rebooted for the update to take effect.

You can find firmware images in the **Software Downloads** section of the ADTRAN website (www.adtran.com/web/page/portal/Adtran/wp_support_softwaredownloads).

Step 1: Preparing the AOS Unit for Upgrade

Before upgrading your firmware, the AOS unit must be connected to the network according to the method used to transfer the firmware. In order to communicate with the AOS unit, the CONSOLE port of the AOS unit must be connected to a PC with VT100 terminal emulation software or the Ethernet interface of the AOS unit must be connected to a PC with a Telnet client through the LAN. When using a method in which a network server is required (HTTP, HTTPS, and TFTP), the firmware image must be downloaded to the server of the appropriate type. *Figure 1 on page 11* shows the equipment and connections required to update an AOS unit using all of the methods detailed in the following sections. Not all equipment pictured is required for all methods.
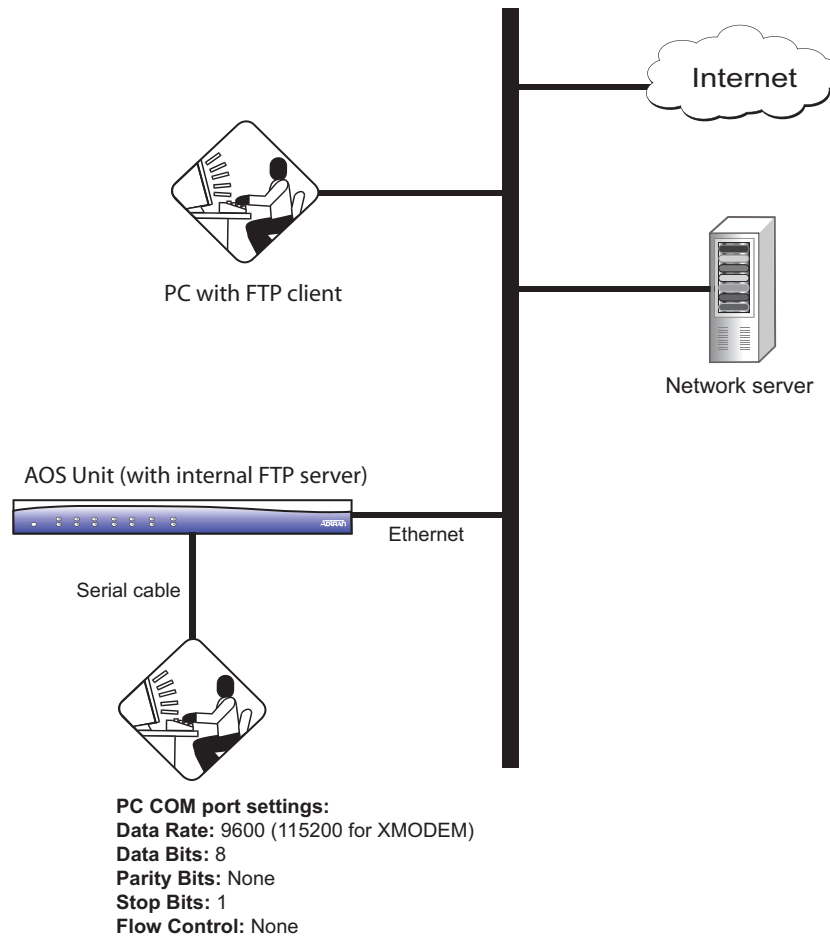
Figure 1. Required Equipment and Connections for Upgrading an AOS Unit

Preparing the AOS Unit for Upgrade Using TFTP

In order to upgrade an AOS unit using TFTP, you will need the following equipment:

- TFTP server
- PC with VT100 terminal emulation software
- DB-9 straight-through serial cable to connect your PC with VT100 terminal emulation software to the **CONSOLE** port of the AOS unit (optional if you are using Telnet)
- Ethernet cable to connect the Ethernet port on the AOS unit to a switchport on the LAN (for connection to a TFTP server and a PC with a Telnet client through the LAN)

Before upgrading the AOS unit's firmware using TFTP, perform the following steps:

1. Verify that the AOS unit is physically connected to the LAN.

2. Verify that the TFTP server is running on the same network as the AOS unit.

3. Connect the DB-9 (male) connector of the serial cable to the **CONSOLE** port on the AOS unit and connect the other end to a PC with VT100 terminal emulation software. Alternatively, if you are using Telnet, connect a PC with a Telnet client to the same network as the AOS unit.

4. Download a copy of the firmware image upgrade for your AOS unit to your PC using the steps outlined in *Obtaining a Firmware Update on page 7*.

5. Transfer the firmware image downloaded in the previous step to the TFTP server.

Preparing the AOS Unit for Upgrade Using HTTP/HTTPS

In order to upgrade an AOS unit using HTTP or HTTPS, you will need the following equipment:

*   HTTP or HTTPS server

*   PC with VT100 terminal emulation software

*   DB-9 straight-through serial cable to connect PC with VT100 terminal emulation software to the **CONSOLE** port of the AOS unit (optional if you are using Telnet)

*   Ethernet cable to connect the Ethernet port on the AOS unit to a switchport on the LAN (for connection to a HTTP/HTTPS server and a PC with a Telnet client through the LAN)

Before upgrading your firmware using HTTP or HTTPS, perform the following steps:

1. Verify that the AOS unit is physically connected to the LAN.

2. Verify that the HTTP or HTTPS server is running on the same network as the AOS unit.

3. Connect the DB-9 (male) connector of the serial cable to the **CONSOLE** port on the AOS unit and connect the other end to a PC with VT100 terminal emulation software. Alternatively, if you are using Telnet, connect your PC with a Telnet client to the same network as the AOS unit.

4. Download a copy of the firmware image upgrade for your AOS unit to your PC using the steps outlined in *Obtaining a Firmware Update on page 7*.

5. Transfer the firmware image downloaded in the previous step to the HTTP/HTTPS server.

Preparing the AOS Unit for Upgrade Using FTP

In order to upgrade a unit using FTP, you will need the following equipment:

*   PC with FTP client software

*   DB-9 straight-through serial cable to connect your PC with VT100 terminal emulation software to the **CONSOLE** port of the AOS unit (optional if you are using Telnet)

*   Ethernet cable to connect the Ethernet port on the AOS unit to a switchport on the LAN (for connection to an FTP client through the LAN)

Before upgrading your firmware using FTP, perform the following steps:

1. Verify that the AOS unit is physically connected to the LAN.

2. Connect the DB-9 (male) connector of the serial cable to the **CONSOLE** port on the AOS unit and connect the other end to a PC with VT100 terminal emulation software. Alternatively, if you are using Telnet, connect aPC with a Telnet client to the same network as the AOS unit.

3. Connect your PC with FTP client software to the same network as the AOS unit (this can be the same PC as the one used to Telnet into the AOS unit).

4. Download a copy of the firmware image upgrade for your AOS unit to your PC with FTP client software using the steps outlined in *Obtaining a Firmware Update on page 7*.

Preparing the AOS Unit for Upgrade Using XMODEM

In order to upgrade a unit using XMODEM, you will need the following equipment:

*   PC with VT100 terminal emulation software

*   DB-9 straight-through serial cable to connect your PC with VT100 terminal emulation software to the **CONSOLE** port of the AOS unit

Before upgrading your firmware using XMODEM, perform the following steps:

1. Connect the DB-9 (male) connector of the serial cable to the **CONSOLE** port on the AOS unit, and connect the other end to a PC with VT100 terminal emulation software.

2. Download a copy of the firmware image upgrade for your AOS unit to your PC with VT100 terminal emulation software using the steps outlined in *Obtaining a Firmware Update on page 7*.

Step 2: Accessing the CLI

All products using AOS can be accessed using a PC with VT100 terminal emulation software. Most Windows® PCs come with a terminal emulation program called HyperTerminal®, which is located under **Programs > Accessories > Communications**. The latest versions of HyperTerminal can also be downloaded from the Internet. AOS products can also be accessed through the AOS unit's Ethernet interface using a Telnet client.

Accessing the CLI

After connecting the AOS unit, follow these steps to access the CLI:

1. If your AOS unit is off, provide power to the AOS unit as appropriate. Refer to your unit's hardware installation guide for more details.

2. If you are connecting to the AOS unit using the **CONSOLE** port, open a VT100 terminal emulation session on your PC using the following settings: 9600 baud (or bps), 8 data bits, no parity bits, 1 stop bit, and no flow control.

    If you are connecting to the AOS unit using Telnet, begin a session in a Telnet client on your PC. If you are running Windows XP, you can access the Telnet client by navigating to **Start > Run** and entering **telnet 10.10.10.1**. If you are running Windows Vista or Windows 7, you will need to turn on the Telnet client before you access it. To do this, navigate to **Start > Control Panel > Programs and Features > Turn Windows features on or off > Telnet Client Option** and select **OK**. **10.10.10.1** is the default unit IP address. If you have changed your unit's IP address, you will need to enter that address.

3. Enter your user name and password at the prompt.

> **ℹ NOTE**
>
> *The AOS default user name is **admin** and the default password is **password**. If your product no longer has the default user name and password, contact your system administrator for the appropriate user name and password.*

---

4. Enter the Enable mode by entering **enable** at the prompt as follows:

    ```
    >enable
    ```

5. Enter your Enable mode password at the prompt. The default password is **password**.

6. Enter the AOS unit's Global Configuration mode as follows:

    ```
    #configure terminal
    (config)#
    ```

Additional XMODEM and FTP Settings

If you are using XMODEM with VT100 terminal emulation software, enter the following commands from the Global Configuration mode prompt to help speed up XMODEM transfer:

```
#configure terminal
```

```
(config)#line con 0
(config-con0)#speed 115200
```

This will terminate the terminal connection. Restart the VT100 terminal emulation software with the speed set to 115200 bps.

If you are using FTP, enter the following commands from the Global Configuration mode prompt to enable the FTP agent and define a user name and password to use for FTP authentication:

```
(config)#ip ftp server
(config)#user name <user name> password <password>
```

The *<user name>* variable is the desired user name for FTP authentication, and the *<password>* variable is the desired password for FTP authentication.

Step 3: Reviewing the Current Firmware

To display the firmware your AOS unit is currently using as well as the firmware files stored in flash and CompactFlash follow these steps:

1. Enter the **show version** command, at either the Basic or Enable mode prompt. An example of the output is shown below:

```
>show version
ADTRAN, Inc. OS version A4.04.05.E
 Mainline Version: M04
 Checksum: 8A86BB2C
 Built on: Tue Dec 07 00:36:38 2010
 Upgrade key: 1e5df31ad3569aea4339b1c342bf70b4
Hardware version C.1
Boot ROM version A3.01.00
 Checksum: 6A26
 Built on: Wed Jul 08 16:52:15 2009
Copyright (c) 1999-2009, ADTRAN, Inc.
Platform: Netvanta 6334, part number 17006334G1, CLEI code is N/A
Serial number LBADTN0940AD077
Flash: 67108864 bytes  DRAM: 134217727 bytes

NV6334 uptime is 11 weeks, 0 days, 23 hours, 32 minutes, 7 seconds

slot 0, DSP 1
 DSP software version: A4.04.01b
 DSP hardware version: Freescale MSC7119
 Total channels: 30

System returned to ROM by Software Watchdog
Current system image file is "NV6300A-A4-04-05-E.biz"
Primary boot system image file is "NV6300A-A4-04-05-E.biz"
Backup boot system image file is "NV6300A-A4-04-02-E.biz"
Primary system configuration file is "startup-config"
```

> **ℹ NOTE**
>
> *The current AOS version and the primary boot system image (*.biz) file are displayed in bold in the previous example.*

2. To display the firmware files stored in flash memory and the amount of flash memory available, enter the **show flash** command at the Enable mode prompt. To display the firmware files stored in CompactFlash and the amount of CompactFlash memory available, enter the **show cflash** command at the Enable mode prompt. An example of the **show flash** command output is shown below:

```
>enable
Password:
#show flash
(dir) 1024 coeff
248235 exception-report-20101209145119
245220 exception-report-20101220145617
238185 exception-report-20101228112313
12333048 NV6300A-A4-03-00-E.biz
12337513 NV6300A-A4-03-01-E.biz
2136877 NV6300A-A4-04-02-E.biz
12145156 NV6300A-A4-04-05-E.biz
2599 SHDSL
4251 startup-config
3835 startup-config.bak
49833930 bytes used, 10621845 available, 60455775 total
```

Step 4: Erasing Unused Firmware Files

If you have two firmware versions in memory, and you need to make room for the new file, you should erase the backup firmware file. To erase a firmware file, follow these steps:

1. Use the **erase flash** *<filename>* command to erase a firmware file stored in flash memory. Use the **erase cflash** *<filename>* command to erase a firmware file stored in CompactFlash memory. The *<filename>* variable is the name of the firmware (**.biz**) file you want to delete. File names are case sensitive.

2. To make sure the file was removed, use the **show flash** command (if the file was stored in flash memory) or the **show cflash** command (if the file was stored in CompactFlash memory) at the Enable mode prompt. The file you deleted should no longer appear in the list.

Step 5: Saving the Running Configuration to Flash

If you want to continue using the running configuration after the AOS firmware upgrade (and it is not the startup configuration), the running configuration can be saved to flash memory prior to upgrading the firmware.

To save the running configuration to the AOS unit's flash, follow these steps:

1. Enter the following command at the Enable mode prompt:

```
#copy running-config startup-config
```

2. Verify that the **Done. Success!** message displays, indicating that the copy is complete. The currently running configuration is now saved as the startup configuration file, and the router will execute it the next time the AOS unit is powered up.

Step 6: Saving a Copy of the Startup Configuration

If you would like to save a backup copy of the AOS unit's startup configuration to an external device, you can download the startup configuration to an external server or PC.

Saving the Startup Configuration to a TFTP Server

To save the startup configuration file to an external TFTP server, follow these steps:

1. Enter the following command from the Enable mode prompt:

   #**copy startup-config tftp**

2. Enter the IP address of the TFTP server when prompted for the **Address of remote host**.

3. Enter a file name for the saved configuration when prompted for the **Destination filename**.

> **i** **NOTE**
>
> *All configuration files downloaded from the AOS unit should have a **.txt** extension. Use easily identifiable names, such as the date (for example., **031611.txt**), when saving the configuration.*

An example of these steps is shown below:

```
#copy startup-config tftp
Address of remote host? 192.22.16.71
Destination filename? 031611.txt
```

Saving the Startup Configuration to an HTTP/HTTPS Server

To download the startup configuration to an external HTTP/HTTPS server, from the Enable mode prompt enter:

   #**copy startup-config [http | https] <url>**

The *<url>* variable specifies the uniform resource locator (URL) of the HTTP/HTTPS server and is case sensitive.

### Saving the Startup Configuration to a PC using XMODEM

1. To initiate a download of the saved startup configuration file via XMODEM, from the Enable mode prompt enter:

   #**copy startup-config XMODEM**

2. From the HyperTerminal menu on your PC, select **Transfer > Receive File**. The **Receive File** dialog box displays.

3. Use the **Use receiving protocol** drop-down menu to set the protocol to **Xmodem**.

Select the directory in which to store the backup configuration file.

Select **Xmodem** as the receiving protocol.

Select **Receive** to enter a file name for the configuration and transfer the file.
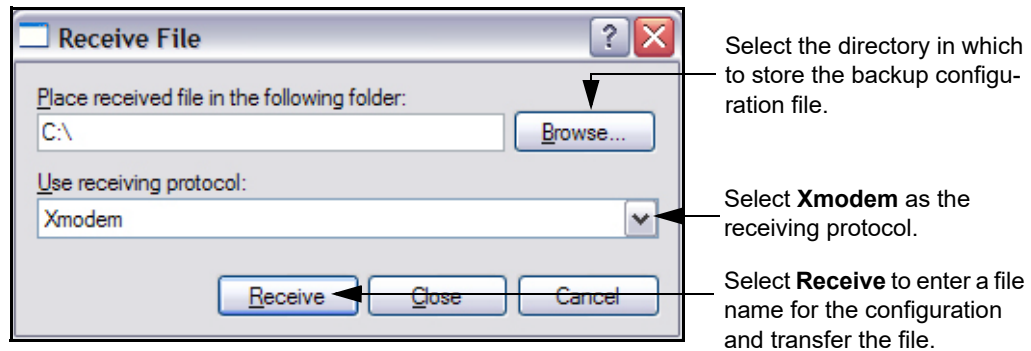
4. Select the **Browse** button, and select the directory where you want to store the backup configuration file.

5. Select **Receive** to enter a file name for the saved configuration, and select **OK** to transfer the saved configuration file.
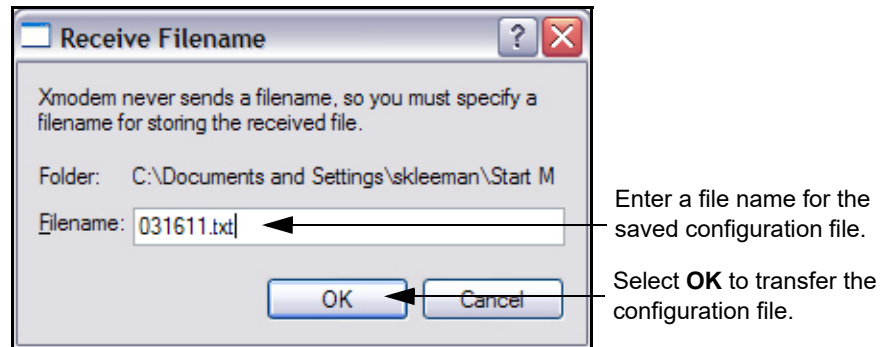
Enter a file name for the saved configuration file.

Select **OK** to transfer the configuration file.

---

i   **NOTE**

All configuration files downloaded from the AOS unit should have a .txt extension. Use easily identifiable names, such as the date (for example., 031611.txt), when saving the configuration.

An example of the output is shown below:

```
#copy startup-config XMODEM
Begin the XMODEM transfer now...
Press CTRL+X twice to cancel
Transmitted 625 bytes.
Transfer complete.
#
```

Step 7: Uploading the Firmware

After erasing any unused firmware and saving the startup configuration, you are ready to upload the firmware to the AOS unit's flash or CompactFlash.

Uploading Firmware to Flash/CompactFlash Using TFTP

To upload firmware to the AOS unit's flash or CompactFlash using TFTP, follow these steps:

1. To upload the firmware from the TFTP server to the AOS unit's flash or CompactFlash, enter the following command at the Enable mode prompt:

   ```
   #copy tftp [flash | cflash ]
   ```

   The **flash** keyword copies the firmware file to the AOS unit's internal flash drive and the **cflash** keyword copies the firmware file to the CompactFlash card.

2. Enter the IP address of the TFTP server when prompted for the **Address of remote host**.

3. Enter the file name of the firmware to upload when prompted for the **Source filename**.

4. Enter the file name you wish to use for the AOS firmware image on the device when prompted for the **Destination filename**. Alternatively, your can press enter when prompted for the **Destination filename** to set the **Destination filename** to be the same as the **Source filename**.

An example of these steps is shown below:

```
#copy tftp flash
Address of remote host? 172.22.72.200
Source filename? NV6300A-A4-04-05-E.biz
Destination filename? [NV6300A-A4-04-05-E.biz]
```

Uploading Firmware to Flash/CompactFlash Using HTTP/HTTPS

To upload the firmware to the AOS unit's flash or CompactFlash, from the HTTP/HTTPS server, enter the following command at the Enable mode prompt:

```
#copy [http | https] <url> [flash | clfash ] <destination file>
  force-overwrite port <port>
```

The *<url>* variable specifies the URL of the HTTP/HTTPS server and is case sensitive. The **flash** keyword copies the firmware file to the AOS unit's internal flash drive and the **cflash** keyword copies the firmware file to the CompactFlash card. The *<destination file>* variable names the file to be uploaded to the new location. If a file with the same name as *<destination file>* already exists, using the optional **force-overwrite** keyword erases the file and replaces it with the new one. The optional **port** *<port>* parameter specifies the port to use for the transfer by entering **0** to **65335**.

The following example uploads a firmware upgrade to the AOS unit's flash from an HTTPS server:

```
#copy https 10.100.5.15 flash NV6300A-A4-04-05-E.biz
```

Uploading the Firmware to an AOS Unit Using an FTP GUI

To upload firmware to an AOS unit using an FTP GUI, follow these steps:

1. On your PC where the FTP client software is installed and where the **.biz** file you want to transfer is located, start the FTP client software.

2. For the **Host Name**, use the IP address for the AOS unit, and log in using the user name and password you defined in *Additional XMODEM and FTP Settings on page 13*.

After you have logged in, you can simply drag and drop the firmware file from your PC to the AOS unit.

Uploading the Firmware to an AOS Unit Using the DOS FTP Client Utility

To upload firmware to an AOS unit using the DOS FTP client utility, follow these steps:

1. Open a DOS window.

2. At the prompt, enter **ftp**. The **ftp>** prompt displays.

3. At the **ftp>** prompt, enter **open 10.10.10.1**.

> **i** | **NOTE**
>
> *If you changed the AOS unit's IP address earlier, replace **10.10.10.1** with the IP address of the AOS unit.*

4. At the **User** prompt, enter the user name you created in *Additional XMODEM and FTP Settings on page 13*. Press enter.

5. At the **Password** prompt, enter the password you created in *Additional XMODEM and FTP Settings on page 13*. Press enter.

6. The message **user admin logged in** displays (your user name displays in place of **admin**).

   At the **ftp>** prompt, type **binary**.

   The message **Type set to I** displays.

7. At the **ftp>** prompt, enter the following:

   ```
   ftp>send "C:\Documents and Settings\user\NV6300A-A4-03-00-E.biz"
   ```

> **i** | **NOTE**
>
> *Replace the directory location and the name of the .biz file with the location and file name of the file you want to transfer.*

   If the transfer is successful, the following message displays:

   ```
   200 PORT command successful.
   ```

8. To end the FTP session, enter **close** at the **ftp>** prompt.

Uploading Firmware to Flash/CompactFlash Drive Using XMODEM

To upload the firmware to an AOS unit's flash or CompactFlash drive using XMODEM, follow these steps:

1. To begin uploading the firmware to the AOS unit's flash or CompactFlash drive using XMODEM, enter the following command at the Enable mode prompt:

   ```
   #copy XMODEM [flash | cflash ]
   Destination filename? NV6300A-A4-04-05-E.biz
   ```
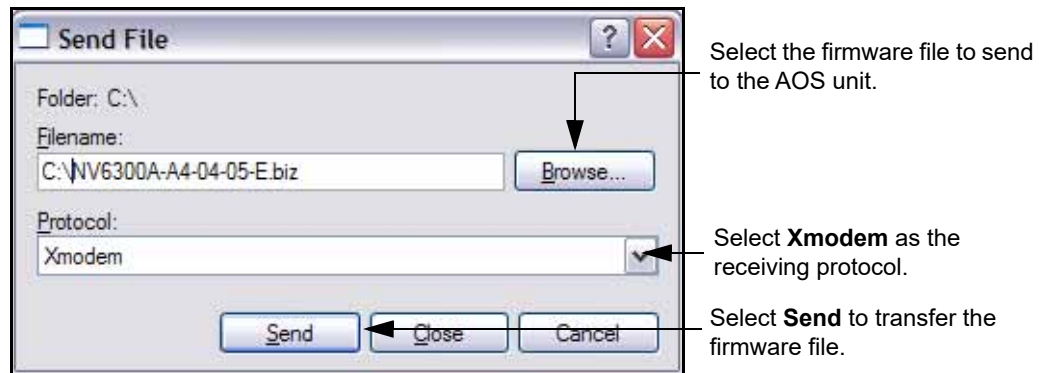
> **i** | **NOTE**
>
> *Replace the **NV6300A-A4-04-05-E.biz** file name with the name of the firmware file you want to upload.*

The **flash** keyword copies the firmware file to the AOS unit's internal flash drive and the **cflash** keyword copies the firmware file to the CompactFlash card.

2. From the HyperTerminal menu, select **Transfer > Send File**. The **Send File** dialog box displays.

Select the firmware file to send to the AOS unit.

Select **Xmodem** as the receiving protocol.

Select **Send** to transfer the firmware file.

3. Use the **Protocol** drop-down menu to set the protocol to **Xmodem**.

4. Select the **Browse** button, and select the directory where the firmware file is stored.

5. Select the file you want to use. The firmware file will have a **.biz** extension.

6. Select **Open**. The file name will appear in the **Filename** field of the **Send File** dialog box.

7. Select **Send**. When the process completes (about five to ten minutes), set the terminal emulator speed back to 9600 using the following commands:

```
#config terminal
(config)#line con 0
(config)#speed 9600
```

8. Restart the VT100 terminal emulation software with the connection speed set to 9600 bps.

Uploading Firmware to an EFM NIM2 Installed in a NetVanta 6310/6330

Firmware for the NetVanta Ethernet in the First Mile (EFM) network interface module (NIM2) is independent of the application code; therefore, firmware for both the NetVanta 6310/6330 and the EFM NIM2 must be upgraded concurrently. Both firmware types can be uploaded to the AOS unit using FTP, HTTP, HTTPS, TFTP, or XMODEM.

After uploading both the firmware for the NetVanta 6310/6330 and EFM NIM2 to the AOS unit using one of the methods outlined in the previous pages, you must apply the firmware code to the EFM NIM2.

To upgrade the interface using a firmware file on the AOS unit's flash or cflash, enter the following command at the Enable mode prompt:

```
#copy [flash | cflash] <sourcefile> interface mef-ethernet <slot>/1
```

In the command above, the **flash** and **cflash** keywords specify the location of the firmware file to be copied (either the AOS unit's flash or CompactFlash memory). The *<sourcefile>* variable specifies the name of the firmware file to copy to the EFM NIM2. The *<slot>* variable specifies the slot in the NetVanta 6310/6330 in which the EFM NIM2 resides.

Once the new EFM NIM2 firmware is applied to the EFM NIM2, the new NetVanta 6310/6330 firmware can be activated and the AOS unit rebooted (refer to *Step 8: Activating the Firmware* below).

Step 8: Activating the Firmware

After uploading the firmware to the AOS unit, the firmware must be activated to ensure that the AOS unit uses the new firmware file as its primary firmware. To activate the firmware, follow these steps:

1. At the Enable mode prompt, enter:

   ```
   #configure terminal
   (config)#
   ```

2. To configure the AOS unit to use the new firmware, at the Global Configuration mode prompt enter the following command:

   ```
   (config)#boot system [flash | cflash] <primary filename> [flash | cflash]
      <secondary filename>
   ```

   The **flash** and **cflash** keywords specify the location of the firmware file to be used as the primary or secondary file. The keyword preceding the primary file name specifies the location of the primary firmware file, and the keyword preceding the secondary file name specifies the location of the secondary firmware file.

   The *<primary filename>* variable specifies the name of the firmware file to be used as the primary system image, and the *<secondary filename>* variable specifies the name of the firmware file to be used as the secondary system image.

   > **i** **NOTE**
   >
   > *The **cflash** parameter is only valid for units with CompactFlash capabilities.*

   > **i** **NOTE**
   >
   > *For units without CompactFlash capabilities, the secondary media type does not need to be specified.*

   For example, the following command specifies that the primary firmware file **NV6300A-A4-04-05-E.biz** is located in flash memory, and the secondary firmware file **NV6300A-A4-05-05-E.biz** is also located in flash memory:

   ```
   (config)#boot system flash NV6300A-A4-04-05-E.biz NV6300A-A4-05-05-E.biz
   ```

3. Cycle the power on the AOS unit or enter **reload** to complete the upgrade process. The new firmware will be activated the next time the AOS unit is powered up.

   > **i** **NOTE**
   >
   > *Cycling the power on the AOS unit will affect the service.*

4. Upgrading AOS Firmware Using AOS Bootstrap

If you are unable to access an AOS unit using the GUI or CLI, it is possible to clear the contents of the unit's flash memory and restore it with an upgrade image using AOS bootstrap.

> **i** **NOTE**
>
> *This procedure will erase the contents of flash memory on the AOS unit. Before proceeding, ensure that you have the tools and materials necessary to restore an AOS image to the AOS unit using AOS bootstrap.*

Preparing the AOS Unit for Upgrade Using AOS Bootstrap

In order to upgrade an AOS unit using AOS bootstrap, you will need the following equipment:

- TFTP server
- PC with VT100 terminal emulation software
- DB-9 straight-through serial cable to connect a PC with VT100 terminal emulation software to the **CONSOLE** port of the AOS unit
    - ♦ Ethernet cable to connect the Ethernet port on the AOS unit to a switchport on the LAN (for connection to a TFTP server through the LAN)

Before upgrading your firmware using AOS bootstrap, perform the following steps:

1. Connect the DB-9 (male) connector of the serial cable to the **CONSOLE** port on the AOS unit and connect the other end to a PC with VT100 terminal emulation software.

2. Start a new session in the VT100 terminal emulation program using the COM port and the following settings: 9600 baud, 8 bits, no parity, 1 stop bit, and no flow control.

3. Reboot the AOS unit by cycling the power. As the AOS unit boots, you will have the opportunity to access bootstrap mode by pressing the **Esc** key within 5 seconds. Press **Esc** when prompted.

Saving the Startup Configuration in AOS Bootstrap

In order to upgrade the AOS unit's firmware using AOS bootstrap, you must clear the contents of the unit's flash memory. Clearing the flash memory will erase all of your system configuration files; therefore, ADTRAN recommends that you backup your system configuration files to your PC.

To copy the contents of the unit's internal flash memory to your PC using XMODEM, issue the following command from the bootstrap prompt:

```
bootstrap#copy flash xmodem
```

Clearing the Contents of an AOS Unit's Flash Memory

To clear the contents of an AOS unit's flash memory, follow these steps:

1. Issue the following command from the bootstrap prompt:

```
bootstrap#erase file-system
This will erase all files in the file-system. Proceed? [y or n]
```

2. To erase all files in the file system, type **y** and press **Enter**. The flash memory will be erased, including the AOS firmware.

> ℹ️ **NOTE**
>
> *Clearing the contents of your AOS unit's flash memory will erase all of your system's configuration files. ADTRAN recommends that before you create a backup.*

Uploading Firmware in Bootstrap Mode Using TFTP

After clearing the contents of an AOS unit's flash memory, an AOS firmware image must be loaded on the system flash in order for the AOS unit to boot. AOS firmware images can be uploaded in bootstrap mode using TFTP. To upload an AOS firmware image to the AOS unit in bootstrap mode using TFTP, follow these steps:

1. Assign an IP address to the Ethernet interface using the following command:

    ```
    bootstrap#ip address <ip address> <subnet mask>
    ```

    The *<ip address>* variable is the IP address of the Ethernet interface that is connected to the network on which the TFTP server is located. The *<subnet mask>* variable is the subnet mask of the Ethernet interface that is connected to the network on which the TFTP server is located.

2. Define a default route for the router using the following command:

    ```
    bootstrap#ip route 0.0.0.0 0.0.0.0 <default gateway>
    ```

    The *<default gateway>* variable is the address of the far end router serving as the gateway for all unknown route packets.

3. Once you have established connectivity to the TFTP server, you can use the following command to transfer the file from the server:

    ```
    bootstrap#copy tftp flash
    ```

4. Enter the IP address of the TFTP server when prompted for the **Address of remote host**.

5. Enter the file name of the firmware to upload when prompted for the **Source filename**.

6. Enter the file name you wish to use for the AOS firmware image on the device when prompted for the **Destination filename**. Alternatively, your can press enter when prompted for the **Destination filename** to set the **Destination filename** to be the same as the **Source filename**.

7. Once the file has successfully transferred to the flash, enter the following command to set the uploaded image as the primary firmware image:

    ```
    bootstrap#boot system flash <primary filename> verify
    ```

    The *<primary filename>* variable specifies the name of the firmware file to be used as the primary firmware. The **verify** keyword verifies the image checksum.

8. After successfully setting the primary image, issue the following command:

    ```
    bootstrap#boot
    ```

    The AOS unit will boot using the new AOS firmware image.

5. Warranty and Contact Information

Warranty and contact information for all ADTRAN products can be obtained using the information in the following sections.

Warranty

Warranty information can be found online by visiting www.adtran.com/warranty.

Contact Information

To contact ADTRAN, choose one of the following methods:

Department	Contact Information	
Customer Care	From within the U.S.: From outside the U.S.:	(888) 4ADTRAN ((888)-423-8726)+ +1 (256) 963-8716
Technical Support	Support Community Product Support:	www.supportforums.adtran.com www.adtran.com/support
Training	Email: ADTRAN University:	training@adtran.com www.adtran.com/training
Sales	For pricing and availability:	1 (800) 827-0807