

4 Managing Files

Depending on the model type and configuration, an Alcatel switch has anywhere from 2 to 32 MB of usable flash memory. This memory is used to store files, including executable files (used to operate switching modules), configuration files, and switch usage log files. Through the User Interface (UI), you can load, copy, and delete any of these files types. In addition, the UI has commands for displaying, creating, and editing ASCII (text-based) files.

All commands described in this chapter will work with files located in the **/flash** directory on the OmniAccess 512.

UI commands for file maintenance are grouped into two menus: the File menu and System menu. File menu commands are listed below. For a list of System menu commands, see *System Menu* on page 4-13.

File Menu

The File menu contains commands for loading, listing, copying, and deleting individual switch files. To access the File menu, enter

file

at the UI prompt.

If verbose mode is enabled, the following list of commands will be displayed automatically.

If verbose mode is disabled, press the question mark (?) to display the following list of commands. (For information on enabling verbose mode, refer to the **uic** command description in Chapter 2, “The User Interface.”)

Command	File Menu
load	Download system software using the serial interface
ftp	Download from an FTP server
pwd	Display the current working directory
ls	List the contents of the current working directory (default working directory is /flash)
rm	Remove a file
cp	Copy a file
view	View an ASCII file
edit	Edit buffer locally
imgcl	Remove all image files
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All commands in the File menu, except for the **load** and **ftp** commands, are described in the following sections. For instructions on using the **ftp** and **load** commands, refer to Chapter 3, “Installing Switch Software.”

◆ Note ◆

If you want to use the **rm**, **cp**, **imgcl**, and the **edit** sub-menu commands, you must be logged in as **admin** or **diag**. See Chapter 2, “The User Interface,” for more information on login accounts.

Displaying the Current Directory

To display the switch's current directory, enter

```
pwd
```

at the system prompt. The working directory will be the **/flash** memory system and the corresponding directory information will be displayed:

```
/flash
```

Listing Switch Files

You can use the **ls** command to list the files in the OmniAccess 512's flash memory. To use this command, enter

```
ls
```

at the system prompt. A screen similar to the following will be displayed.

oa5.cmd	18	05/30/98	13:04
oa5.log	18072	06/15/98	17:57
oa5.img	1573617	06/18/98	12:16
em4.img	26421	06/18/98	12:18
oa5.cfg	1024	01/01/70	00:00
oa5.cnf	32768	06/18/98	12:27

1858057 bytes free.

The **ls** command lists all the files in the current working directory of the OmniAccess 512's flash memory, followed by its size (in bytes), creation date, and creation time. The three-letter file extension indicates the type of file. Examples include configuration (**.cnf** and **.cfg**), command (**.cmd**), image (**.img**), etc. The **ls** command also lists the total number of bytes of free memory in flash memory.

Required Command and Image Files

The following files must be loaded in flash memory for the switch to boot properly:

- **oa5.cmd**
- **oa5.img**
- **em4.img**

Configuration and Log File Generation

The **oa5.cnf**, **oa5.cfg**, and **oa5.log** files are generated automatically by the switch and placed in flash memory during the boot process; you do not have to load them.

♦ Important ♦

If you remove the configuration files (**oa5.cnf** and **oa5.cfg**) from your switch, all of your switch's non-default configuration settings will be deleted at the next boot sequence. Use caution when removing configuration files and be sure to create backup copies if you want to safeguard your current configuration.

File Name Directory

The following table lists supported OmniAccess 512 image, command, and configuration files—along with the modules, ports or features with which the files are used.

File Name	Associated Module, Ports or Feature
oa5.img	OmniAccess 512 Management Processor Module (oa5) Note: The oa5.img file must be loaded in flash memory for the switch to boot properly.
oa5.cmd oa5.cfg oa5.cnf	OmniAccess 512 oa5 Note: The oa5.cmd file must be loaded in flash memory for the switch to boot properly.
ae4.img	ATM uplink ports
dem4.img	Hardware Diagnostics software for stress and ILB stress testing
ds3e3drv.img	DS3/E3 uplink ports
em4.img	Ethernet LAN ports Note: The em4.img file must be loaded in flash memory for the switch to boot properly.
fw4.img	IP Firewall software
gated.img	Advanced Routing software
ipcntrl.img	IP Control software
ipms.img	IP Multicast Switching (IPMS) software
isdn.img	ISDN uplink ports
mrd.img	Advanced Routing software
ntp.img	Network Time Protocol (NTP) software
p4diag.img	Hardware Diagnostics software
policy.img	Policy Manager software
qos.img	Quality of Service (QoS) software
rav.img	RADIUS Authentication software
t1e1drv.img	T1/E1 uplink ports
text_cfg.img	Text-Based Configuration/CLI software
vrrp.img	Virtual Router Redundancy Protocol (VRRP) software
ws4.img	WAN uplink ports

Removing Switch Files

You can use the **rm** command to delete files in the oa5's flash memory. To use this command, enter **rm**, followed by the name of the file you want to delete. For example, to delete the file **oa5.log**, you would enter

```
rm oa5.log
```

at the UI prompt. The following screen will be displayed:

```
File system compaction in progress...
```

The switch will take a few seconds to delete the file and compact the flash memory.

◆ Reminder ◆

The **oa5.cmd**, **oa5.img** and **em4.img** files must be present for the switch to boot properly. Refer to *Required Command and Image Files* on page 4-2 for more information.

Removing Multiple Files

You can remove multiple files either by entering multiple file names in the command line or by using wildcards.

When entering multiple file names, be sure to include a space between each file name you want to delete. For example, to remove both the **oa5.cfg** and **oa5.cnf** files, you would enter the following:

```
rm oa5.cfg oa5.cnf
```

Wildcards let you substitute an asterisk (*) for file name text. You can remove all files with the same extension by entering **rm**, followed by an asterisk (*), a period (.), and the file extension. For example, if you want to delete all the files with the **log** extension, enter

```
*.old
```

at the UI prompt. The following message will be displayed:

```
Remove the following?
    /flash/oa5.log.old
    /flash/oa5.old
Are you sure you want to remove this? (n)
```

Press the **y** key to delete the selected files or press **<Enter>** to cancel. If you press the **y** key, the following will be displayed:

```
...2 files removed
```

The switch will take a few seconds to delete the file and compact the flash memory.

◆ Note ◆

If you want to delete all the image files (i.e., files with the **img** extension), you can use the **imgcl** command, which is described in *Removing All Image Files* on page 4-4.

Removing All Image Files

You can use the **imgcl** command to delete all executable (image) files. The files deleted by the **imgcl** command include the oa5 boot file (**oa5.img**), all executable switching module files (the factory default is all files ending with the **.img** extension), and all PGA files.

◆ Important ◆

Also, you should only use the **imgcl** command during network down times and when you are connected to the switch through the serial port.

◆ Reminder ◆

The **oa5.cmd**, **oa5.img** and **em4.img** files must be present for the switch to boot properly. Refer to *Required Command and Image Files* on page 4-2 for more information.

To use this command, enter

```
imgcl
```

at the system prompt. A screen similar to the one shown below will be displayed.

```
Remove the following?
    /flash/dem4.img
    /flash/em4.img
    /flash/hem4.img
    /flash/oa5.img
Are you sure you want to remove them? (n)
```

Press the **y** key to delete all the image files or press **<Enter>** to cancel. If you press the **y** key, the switch will spend several minutes deleting the image files.

◆ Note ◆

If you want to delete *all* files in flash memory, you can use the **newfs** command, which is described in *Creating a New File System* on page 4-15.

After you have deleted all the old image files, you must load new image files using FTP or ZMODEM so the switch can function. See Chapter 3, “Installing Switch Software,” for instructions on using the **ftp** and **load** commands.

Copying System Files

You can use the **cp** command to copy files. This is particularly useful if you want to make backups of important files. To use this command, enter **cp**, followed by the name of the original file you want to copy, and then by the name that you wish to give the duplicate file. For example, to make a duplicate of the file **oa5.cmd** that is to be called **oa5.bak**, enter

```
cp oa5.cmd oa5.bak
```

at the system prompt. The following information will be displayed:

```
/flash/oa5.cmd -> /flash/oa5.bak : 100%
```

Viewing Text Files

You can use the **view** command to display the contents of ASCII (text-based) files. To use this command, enter **view**, followed by the name of the file you want to display. To display the **oa5.cmd** file, for example, enter

```
view oa5.ascii
```

at the system prompt. A screen similar to the one shown below will be displayed.

```
cmDoDump=1  
cmInit
```

Note that if you try to view a file with non-ASCII characters, an error message will be displayed. For example, if you use the **view** command on the file **oa5.cfg**, the following error message will appear:

```
The file oa5.cfg has non-printable characters, can't view
```

◆ Note ◆

You can edit text files with the **edit** sub-menu commands, which are described in *Editing Text Files* on page 4-7.

Editing Text Files

The commands in the Edit sub-menu (also called the Text Buffer or Edit Buffer) are used to create new text files and to modify existing text files. To enter the edit sub-menu, enter

edit

at the system prompt.

If verbose mode is enabled, the following list of commands will be displayed automatically.

If verbose mode is disabled, press the question mark (?) to display the following list of commands. (For information on enabling verbose mode, refer to the **uic** command description in Chapter 2, “The User Interface.”)

Command	Edit Menu
ab	Append line(s) to the buffer
cb	Clear the buffer
db	Delete line from the buffer
eb	Edit a buffer line
ib	Insert buffer line
lb	List contents of the buffer
nb	Name file for buffer
rb	Read file into buffer
wb	Write buffer to file

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The Edit sub-menu commands are outlined in the following sections. You can edit up to 100 lines of text. Each line of text can be up to 97 characters long.

◆ Note ◆

When you edit text files, you will normally use several of the Edit sub-menu commands to produce the results you want. See *Real-World Example 1* on page 4-11 or *Real-World Example 2* on page 4-12 for examples of how to use multiple commands from the Edit sub-menu.

Adding Lines of Text to the Text Buffer

You can use the **ab** command to manually add lines of text to the Edit sub-menu. Note that the lines you enter are appended at the end of the buffer. For example, if there are 10 lines of text in the buffer, you will begin entering text at the 11th line. If the buffer is empty, the line of text you enter will be the first line of text in the buffer.

To add text to the buffer, enter

ab

at the system prompt. A screen similar to the one shown below will be displayed:

02 :

Enter your text and press the **<Enter>** key to add the text to the buffer. If the buffer is not full, the system will prompt you to enter another line of text. If the buffer is full (i.e., there are 100 lines in the text buffer), the following message will be displayed.

Buffer Full!

To exit the **ab** command, type a period (.) and press **<Enter>**.

Clearing the Text Buffer

You can use the **cb** command to clear the Edit buffer's memory so you can create a new text file. To use the **cb** command, enter

cb

at the system prompt.

Deleting a Line of Text from the Text Buffer

You can use the **db** command to delete a specific line in the text buffer. To use this command, enter **db**, followed by line number of the line of text you want delete, which is shown by the **lb** command. For example, to delete the third line of text in the text buffer, enter

db 3

at the system prompt.

Enter the **lb** command again to view the contents of the buffer. Note that the text that appeared at line 3 has been deleted.

Editing a Line Name of Text in the Text Buffer

You can use the **eb** command to edit an existing line of text in the buffer. To use this command, enter **eb**, followed by the line number of the text you want to edit. For example, if you want to edit the text at line 01, enter

eb 1

at the system prompt. The following screen will be displayed:

01:

Enter the text as you want it to appear and press **<Enter>**.

Enter the **lb** command again to list the contents of the text buffer. Note that the buffer now reflects the edited line of text.

Inserting a Line of Text into the Text Buffer

You can use the **ib** command to insert a line of text between two existing lines in the buffer. To use this command, enter **ib**, followed by the number of the line where you want the new text to appear. For example, if you want to add the text, **atm_use_mbus=3**, between lines **00** and **01** in the buffer, enter

```
ib 1
```

at the system prompt. The following screen will be displayed:

```
01:
```

Enter the line of text, **atm_use_mbus=3**.

At the system prompt, enter the **lb** command to view the contents of the buffer. If the original text buffer looked like this,

```
00: cmDoDump=1  
01: cmlnit
```

the revised text buffer, with the inserted text, will now appear as follows:

```
00: cmDoDump=1  
01: atm_use_mbus=3  
02: cmlnit
```

Listing the Contents of the Text Buffer

The **lb** command is used to list the contents of the Edit buffer's memory. To use this command, enter

```
lb
```

at the system prompt. If there is something in the buffer, the system will display the contents numbered from the zero. The following display is a typical example:

```
00: cmDoDump=1  
01: cmlnit
```

If there is nothing in the buffer, nothing will be displayed.

Naming the Text Buffer

If no file name has been created for the text buffer, the following message is displayed whenever the **lb** command is executed:

```
Work buffer is unnamed
```

Use the **nb** command to create a name for the text buffer. To use this command, enter **nb**, followed by the name you wish to give the text buffer. For example, if you want to name the buffer **oa5.cmd**, enter

```
nb oa5.cmd
```

at the system prompt. The following screen is displayed, showing the current working directory (**/flash**), followed by the new name for the text buffer (**/oa5.cmd**):

```
Work buffer name is: /flash/oa5.cmd
```

Reading an ASCII File into the Text Buffer

You can use the **rb** command to load—or *read*—an existing ASCII file in flash memory to the Edit buffer's memory. To use this command, enter **rb**, followed by the file you wish to edit. For example, to edit the **oa5.cmd** file, enter

```
rb oa5.cmd
```

at the system prompt.

◆ Loading Binary Files ◆

You can load a binary file into the Edit buffer but you will not be able to edit it.

Writing a Text File from the Text Buffer

The **wb** command is used to create—or *write*—a text file from the text buffer. To use this command, enter **wb** followed by the name of the output file. For example, if you want to create the file **switch.txt**, enter

```
wb switch.txt
```

at the system prompt. The following screen is displayed:

```
Work buffer name is: /flash/switch.txt
```

Writing Changes to Existing Files

You can also use the **wb** command to overwrite changes to an existing file. For example, if you want to overwrite changes to the file **oa5.cmd**, enter

```
wb oa5.cmd
```

at the system prompt. The following screen is displayed:

```
/flash/oa5.cmd exists in /flash. Overwrite it? (y)
```

Press **<Enter>** to create the text file from the text buffer. The computer will take a few seconds as it overwrites the file, and the following information is displayed:

```
File system compaction in progress...
```

At the system prompt, enter the **lb** command to view the name of the buffer. Note that the work buffer is now named **/flash/oa5.cmd**.

Real-World Examples

As noted on page 5-7, when you edit text files, you will normally use several of the Edit sub-menu commands to produce the results you want. The following two examples, *Real-World Example 1* and *Real-World Example 2*, are actual multi-command procedures that you may encounter as you work with your switch.

Real-World Example 1

```
cp oa5.cmd oa5.bak
rb oa5.cmd
lb
00: cmDoDump=1
01: cmlnit
nb oa5.cmd
Work buffer name is: /flash/oa5.cmd
ab
02 :
02 : reg_port_rule=1
03 :
No line 3 inserted
lb
00: cmDoDump=1
01: cmlnit
02: reg_port_rule=1
Work buffer name is: /flash/oa5.cmd
wb
/flash/oa5.cmd exists in /flash. Overwrite it? (y)
File system compaction in progress...
view oa5.cmd
cmDoDump=1
cmlnit
reg_port_rule=1
```

Real-World Example 2

```
cp oa5.cmd oa5.bak
rb oa5.cmd
lb
00: cmDoDump=1
01: cmlnit
02: reg_port_rule=1
nb oa5.cmd
Work buffer name is: /flash/oa5.cmd
db 2
lb
00: cmDoDump=1
01: cmlnit
ib 1
01 :
01 : rifStripping=1
lb
00: cmDoDump=1
01: rifStripping=1
02: cmlnit
Work buffer name is: /flash/oa5.cmd
wb
/flash/oa5.cmd exists in /flash. Overwrite it? (y)
File system compaction in progress...
view oa5.cmd
cmDoDump=1
cmlnit
rifStripping=1
```

System Menu

The System menu contains two commands, **fsck** and **newfs**, for checking and deleting all files in the flash memory. To access the System menu, enter

system

at the UI prompt.

If verbose mode is enabled, the following list of commands will be displayed automatically.

If verbose mode is disabled, press the question mark (?) to display the following list of commands. (For information on enabling verbose mode, refer to the **uic** command description in Chapter 2, “The User Interface.”)

Command	System Menu
info	Basic info on this system
dt	Set system date and time
ser	View or configure the DTE or DCE port
oa5	Configure a Management Processor Module
slot	View Slot Table information
systat	View system stats related to system, power and environment
taskstat	View task utilization stats
memstat	View memory use statistics
fsck	Perform a file system check on the flash file system
newfs	Erase all files from flash directory and create a new file system
syscfg	View/Configure info related to this system
uic	UI configuration; change - prompt, timeout, more, verbose.
camstat	View CAM info and usage
camcfg	Configure CAM info and usage
ver/ter	Enables/disables automatic display of menus on entry
echo/noecho	Enable/disable character echo
chpr	Change the prompt for the system
logging	View system logs
health	Set health parameters or view health statistics
cli	Enter command line interface
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Checking the Flash File System

The **fsck** command performs a file system check of flash memory, which consists of the flash file system. All image files are stored in flash memory and loaded into system memory when the switch boots up.

The command also provides diagnostic information in the event of file corruption. To perform a file system check of flash memory, enter

fsck

at the system prompt. A screen similar to the following will be displayed:

Your bootroms support Flash File System Version 2 and greater.

Out of 9 file descriptors in use, 0 of these are opened on the /flash device.

Performing a file system check using manual mode. If a file is encountered with a potential problem, you may wish to consider preserving it for technical support analysis...

Flash file system check in progress...
Checking root file system... OK
Performing file consistency check...
Done.

There doesn't appear to be a system problem related to the Flash File system or kernel file system data structures. If you are experiencing problems with the flash file system, perhaps try using the "info", "systat", or "memstat" commands. They may indicate some other condition (such as low memory) which could prohibit correct operation of the file system.

If the **fsck** command detects a problem with the flash file system, a message will be displayed indicating the problem, along with any steps needed to resolve it.

Creating a New File System

The **newfs** command removes a complete flash file system and all files within it, replacing it with a new empty flash file system. Use this command when you want to reload all files in the file system, or in the unlikely event that the flash file system becomes corrupted.

To create a new file system and re-initialize the flash memory, enter

newfs

at the system prompt. The following will be displayed.

You are about to destroy all files on file system /flash. If you are experiencing problems with the flash file system, you might want to use the "fsck" command to help determine where problems may exist.

Are you absolutely sure you want to strip the current file system and create a new one? (n)

Press **<Enter>** to cancel, or enter **y** to create a new file system. If you enter **y**, you will have to load new software into the switch.

◆ Warning ◆

Do not power-down the switch after running the **newfs** command until you reload your image and configuration files. Otherwise, you will have to reload the image files at the boot monitor prompt using the serial interface (e.g., ZMODEM), which can take several minutes. Also, before you execute the **newfs** command, you may also want to preserve your configuration file by saving it to another host.

You can now download new files via FTP or ZMODEM.

