Cisco Virtual Security Gateway System Management

This chapter describes how to manage the Cisco Virtual Security Gateway (VSG).

This chapter includes the following sections:

Information About VSG System Management

The Cisco Virtual Security Gateway (VSG) enables you to use command-line interface (CLI) configuration commands to do standard system management functions such as the following:

- Changing the hostname
- Configuring messages of the day
- Displaying, saving, and erasing configuration files
- Providing a single interface to all file systems including:
  - Flash memory
  - FTP and TFTP
  - Running configuration
  - Any other endpoint for reading and writing data
- Identifying users connected to the Cisco VSG
- Sending messages to single users or all users

Changing the Cisco VSG Instance Name

You can change the Cisco VSG instance name or prompt. If you have multiple instances of Cisco VSGs, you can use this procedure to uniquely identify each Cisco VSG.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in global configuration mode.

SUMMARY STEPS

1. **configure**
2. **hostname**

DETAILED STEPS

	Command	Purpose
Step 1	**configure** **Example:** `vsg# configure`	Places you in global configuration mode.
Step 2	**hostname** *host-name* **Example:** `vsg(config)# hostname vsg100`	Changes the host prompt. The *host-name* argument can have a maximum of 32 alphanumeric characters.

This example shows how to change the hostname (name of the Cisco VSG):

```
vsg# configure
vsg(config)# hostname metro
vsg(config)# exit
metro#
```

Configuring a Message of the Day

You can configure a message of the day (MOTD) to display at the login prompt.

- The banner message can be up to 40 lines with up to 80 characters per line.
- Use the following guidelines when choosing your delimiting character:
  - Do not use the delimiting-character in the message string.
  - Do not use **"** and **%** as delimiters.
- The following tokens can be used in the message of the day:
  - `$(hostname)` displays the hostname for the switch.
  - `$(line)` displays the vty or tty line or name.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in configuration mode.

SUMMARY STEPS

1. **configure**
2. **banner motd**
3. **show banner motd**

DETAILED STEPS

	Command	Purpose
Step 1	**configure** **Example:** `vsg# configure`	Places you in global configuration mode.
Step 2	**banner motd** [*delimiting-character message delimiting-character*] **Example:** `vsg(config)# banner motd #Hello#`	Configures an MOTD with the following limits: • Up to 40 lines • Up to 80 characters per line • Enclosed in a delimiting character, such as # • Can span multiple lines • Can use tokens
Step 3	**show banner motd** **Example:** `vsg(config)# show banner motd`	Displays the configured banner message.

This example shows how to configure an MOTD:

```
vsg# configure
vsg(config)# banner motd #December 12, 2010 Welcome to the VSG#
vsg(config)# show banner motd
December 12, 2010 Welcome to the VSG
vsg(config)#
```

Verifying the Cisco VSG Configuration

This section includes the following topics on verifying the Cisco VSG configuration:

Verifying the Software and Hardware Versions

You can view the versions of software and hardware on your system.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show version**

DETAILED STEPS

	Command	Description
Step 1	**show version** **Example:** vsg# show version	Displays the versions of system software and hardware that are currently running on the Cisco VSG.

This example shows how to display and verify the system software and hardware version information for the Cisco VSG:

```
vsg# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2011, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained herein are owned by
other third parties and are used and distributed under license.
Some parts of this software are covered under the GNU Public
License. A copy of the license is available at
http://www.gnu.org/licenses/gpl.html.

Software
  loader:    version unavailable [last: image booted through mgmt0]
  kickstart: version 4.2(1)VSG1(2) [build 4.2(1)VSG1(2.398)]
  system:    version 4.2(1)VSG1(2) [build 4.2(1)VSG1(2.398)]
  kickstart image file is: [not present on supervisor]

  kickstart compile time:  07/12/2011 17:00:00
  system image file is:    bootflash:/nexus-1000v-mz.VSG1.0.398.bin
  system compile time:     07/17/2011 17:00:00 [07/17/2011 13:03:38]

Hardware
  cisco Nexus 1000VF Chassis ("Nexus VSN Virtual Firewall")
  Intel(R) Xeon(R) CPU         with 1944668 kB of memory.
  Processor Board ID T5056BB0072

  Device name: vsg
  bootflash:    2059572 kB

Kernel uptime is 1 day(s), 5 hour(s), 47 minute(s), 4 second(s)

plugin
  Core Plugin, Virtualization Plugin, Ethernet Plugin
```

Verifying the Running Configuration

You can view the configuration currently running on the system.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show running-config**

DETAILED STEPS

	Command	Description
Step 1	**show running-config** **Example:** vsg# show running-config	Displays the versions of system software and hardware that are currently running on the Cisco VSG.

This example shows how to display the versions of system software and hardware running on the Cisco VSG:

```
vsg# show running-config

!Command: show running-config
!Time: Sun Jul 17 17:42:59 2011

version 4.2(1)VSG1(2)
no feature telnet
no feature http-server

username admin password 5 $1$RU5OIPU7$SYvoK9S5rOMRE9WBWZLsA.  role network-admin

banner motd #Nexus VSN#

ssh key rsa 2048
ip domain-lookup
ip domain-lookup
hostname vsg
snmp-server user admin network-admin auth md5 0x5ed3cfea7c44550ac3d18475f28b118b priv
0x5ed3cfea7c44550ac3d18475f28b118b localizedkey

vrf context management
  ip route 0.0.0.0/0 10.193.72.1
vlan 1
port-channel load-balance ethernet source-mac
port-profile default max-ports 32

vdc vsg id 1
  limit-resource vlan minimum 16 maximum 2049
  limit-resource monitor-session minimum 0 maximum 2
  limit-resource vrf minimum 16 maximum 8192
  limit-resource port-channel minimum 0 maximum 768
  limit-resource u4route-mem minimum 32 maximum 32
  limit-resource u6route-mem minimum 16 maximum 16
```

```
  limit-resource m4route-mem minimum 58 maximum 58
  limit-resource m6route-mem minimum 8 maximum 8

interface mgmt0
  ip address 10.193.73.118/21

interface data0
  ip address 118.1.1.1/8
line console
boot kickstart bootflash:/nexus-1000v-kickstart-mzg.VSG1.0.1.bin sup-1
boot system bootflash:/nexus-1000v-mzg.VSG1.0.1.bin sup-1
boot kickstart bootflash:/nexus-1000v-kickstart-mzg.VSG1.0.1.bin sup-2
boot system bootflash:/nexus-1000v-mzg.VSG1.0.1.bin sup-2
  ha-pair id 23

security-profile sp1
  policy p1
rule r1
  action 10 permit
policy p1
  rule r1 order 10
vnm-policy-agent
  policy-agent-image
  registration-ip 0.0.0.0
  shared-secret **********
  log-level info

vsg#
```

Comparing the Startup and Running Configurations

You can view the differences between the startup configuration and running configuration.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show running-config diff**

DETAILED STEPS

	Command	Description
Step 1	**show running-config diff** **Example:** `vsg# show running-config diff`	Displays the difference between the startup configuration and the running configuration.

This example shows how to display the difference between the startup configuration and the running configuration:

```
vsg# show running-config diff
*** Startup-config
```

```
--- Running-config
***************
*** 14,34 ****
  banner motd #Nexus VSG#

  ssh key rsa 2048
  ip domain-lookup
  ip domain-lookup
! switchname G-VSG-116-1
  snmp-server user admin network-admin auth md5 0x5ed3cfea7c44550ac3d18475f28b118b priv
0x5ed3cfea7c44550ac3d18475f28b118b localizedkey
  snmp-server user vsnbetauser network-admin auth md5 0x11d89525029e4148a2a494a8e131f9ed
priv 0x11d89525029e4148a2a494a8e131f9ed localizedkey

  vrf context management
    ip route 0.0.0.0/0 10.193.72.1
  vlan 1
  port-channel load-balance ethernet source-mac
  port-profile default max-ports 32

! vdc G-VSG-116-1 id 1
    limit-resource vlan minimum 16 maximum 2049
    limit-resource monitor-session minimum 0 maximum 2
    limit-resource vrf minimum 16 maximum 8192
    limit-resource port-channel minimum 0 maximum 768
    limit-resource u4route-mem minimum 32 maximum 32
--- 13,33 ----
  banner motd #Nexus VSG#

  ssh key rsa 2048
  ip domain-lookup
  ip domain-lookup
! hostname vsg
  snmp-server user admin network-admin auth md5 0x5ed3cfea7c44550ac3d18475f28b118b priv
0x5ed3cfea7c44550ac3d18475f28b118b localizedkey
  snmp-server user vsnbetauser network-admin auth md5 0x11d89525029e4148a2a494a8e131f9ed
priv 0x11d89525029e4148a2a494a8e131f9ed localizedkey

  vrf context management
    ip route 0.0.0.0/0 10.193.72.1
  vlan 1
  port-channel load-balance ethernet source-mac
  port-profile default max-ports 32

! vdc vsg id 1
    limit-resource vlan minimum 16 maximum 2049
    limit-resource monitor-session minimum 0 maximum 2
    limit-resource vrf minimum 16 maximum 8192
    limit-resource port-channel minimum 0 maximum 768
    limit-resource u4route-mem minimum 32 maximum 32
vsg#
```

Displaying Interface Configurations

This section includes the following procedures:

- Displaying a Brief View of a Specific Interface Configuration, page 4-8
- Displaying a Detailed View of a Specific Interface Configuration, page 4-8
- Displaying a Brief View of All Interfaces, page 4-9
- Verifying the Running Configuration for All Interfaces, page 4-10

Displaying a Brief View of a Specific Interface Configuration

You can display a brief view of a specific interface configuration.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show interface brief**

DETAILED STEPS

	Command	Description
Step 1	**show interface** {*type*} {*name*} **brief** **Example:** vsg# show interface brief	Displays a brief view of a specific interface configuration.

This example shows how to display a brief view of a specific interface configuration:

```
vsg# show interface brief

--------------------------------------------------------------------------------
Port     VRF          Status IP Address                              Speed    MTU
--------------------------------------------------------------------------------
mgmt0    --           up     10.193.73.10                            1000     1500

--------------------------------------------------------------------------------
Port     VRF          Status IP Address                              Speed    MTU
--------------------------------------------------------------------------------
data0    --           up     10.10.10.10                             1000     1500
vsg#
--------------------------------------------------------------------------------
```

Displaying a Detailed View of a Specific Interface Configuration

You can display a detailed view of a specific interface configuration.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show interface**

DETAILED STEPS

	Command	Description
Step 1	**show interface** {*type*} {*name*} **Example:** vsg# show interface mgmt 0	Displays a detailed version of a specific interface connection.

This example shows how to display a detailed version of a specific interface connection:

```
vsg# show interface mgmt 0
mgmt0 is up
  Hardware: Ethernet, address: 0050.5689.3321 (bia 0050.5689.3321)
  Internet Address is 172.23.232.141/24
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  full-duplex, 1000 Mb/s
  Auto-Negotiation is turned on
    4961 packets input, 511995 bytes
    0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun, 0 fifo
    245 packets output, 35853 bytes
    0 underrun, 0 output errors, 0 collisions
    0 fifo, 0 carrier errors
vsg#
```

Displaying a Brief View of All Interfaces

You can display a brief view of all interfaces.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show interface brief**

DETAILED STEPS

	Command	Description
Step 1	**show interface brief** **Example:** vsg# show interface brief	Displays a brief view of all interfaces.

This example shows how to display a brief view of all the interfaces on the Cisco VSG:

```
vsg# show interface brief

--------------------------------------------------------------------------------
Port     VRF          Status IP Address                       Speed    MTU
```

```
--------------------------------------------------------------------------------
mgmt0     --           up     10.23.232.141                 1000     1500
--------------------------------------------------------------------------------
Ethernet      VLAN   Type Mode   Status  Reason                   Speed     Port
Interface                                                                   Ch #
--------------------------------------------------------------------------------
Eth3/2        1      eth  trunk  up      none                       1000(D) --
Eth3/3        262    eth  access up      none                     1000(D) --
--------------------------------------------------------------------------------
Interface     VLAN   Type Mode   Status  Reason                   MTU
--------------------------------------------------------------------------------
Veth81        630    virt access up      none                     1500
Veth82        630    virt access up      none                     1500
Veth224       631    virt access up      none                     1500
Veth225       1      virt access nonPcpt nonParticipating         1500
vsg#
```

Verifying the Running Configuration for All Interfaces

You can verify the running configuration for all interfaces.

Note The output for the **show running-config interface** command differs from that of the **show interface** command.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show running-config interface**

DETAILED STEPS

	Command	Description
Step 1	**show running-config interface** **Example:** vsg# show running-config interface	Displays the running configuration for all interfaces on your system.

This example shows how to display the running configuration for all the interfaces on the Cisco VSG:

```
vsg# show running-config interface

!Command: show running-config interface
!Time: Sun Jul 17 16:29:08 2011

version 4.2(1)VSG1(2)

interface mgmt0
  ip address 10.193.73.10/16

interface data0
```

```
  ip address 10.10.10.10/24

vsg#
```

Saving a Configuration

You can save the running configuration to the startup configuration, so that your changes are retained in the startup configuration file the next time you start up the Cisco VSG.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **copy running-config startup-config**

DETAILED STEPS

	Command	Description
Step 1	**copy running-config startup-configure** **Example:** `vsg# copy running-config startup-configure`	Saves the running configuration to the startup configuration.

This example shows how to save the running configuration to your startup configuration:

```
vsg(config)# copy running-config startup-config
[########################################] 100%
vsg(config)#
```

Erasing a Configuration

You can erase a startup configuration.

Caution The **write erase** command erases the entire startup configuration with the exception of loader functions.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.
- The following parameters are used with this command:
  - **boot**—Erases the boot variables and the mgmt0 IP configuration.
  - **debug**—Erases the debug configuration.

SUMMARY STEPS

1. **write erase [boot | debug]**

DETAILED STEPS

	Command	Description
Step 1	**write erase** [**boot** | **debug**] **Example:** vsg# write erase debug	Erases the existing startup configuration and reverts all settings to their factory defaults. The running configuration is not affected.

This example shows how to erase a debug startup configuration:

```
vsg(config)# write erase debug
Warning: This command will erase the startup-configuration.
Do you wish to proceed anyway? (y/n)  [y]
[########################################] 100%
vsg(config)#
```

Displaying a Cisco VSG Instance

You can display a Cisco VSG instance.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.

SUMMARY STEPS

1. **show vsg**

DETAILED STEPS

	Command	Description
Step 1	**show vsg** **Example:** `vsg# show vsg`	Displays the particulars of the Cisco VSG—including the model, the high availability (HA) ID, the Cisco VSG software version and build, and the Cisco Virtual Network Management Center (VNMC) IP address. The running configuration is not affected.

This example shows how to display the Cisco VSG model, HA ID, software version and build, and the Cisco VNMC IP address:

```
vsg# show vsg
Model: VSG
HA ID: 10
VSG Software Version: 4.2(1)VSG1(1) build [4.2(1)VSG1(0.396)]
VNMC IP: 10.193.20.12
vsg#
```

Navigating the File System

This section describes how to navigate the file system.

This section includes the following topics:

Specifying File Systems

The syntax for specifying a file system is *<file system name>*:[**//***server***/**]. Table 4-1 describes the file system syntax.

Table 4-1 File System Syntax Components

File System Name	Server	Description
bootflash:	sup-active sup-local sup-1 module-1	Internal memory located on the active supervisor used for storing system images, configuration files, and other miscellaneous files. The CLI defaults to the bootflash: file system.
	sup-standby sup-remote sup-2 module-2	Internal memory located on the standby supervisor used for storing system images, configuration files, and other miscellaneous files.
volatile:	—	Volatile random-access memory (VRAM) located on a supervisor module used for temporary or pending changes.

Identifying Your Current Working Directory

You can display the directory name of your current location in the CLI.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.

SUMMARY STEPS

1. **pwd**

DETAILED STEPS

	Command	Purpose
Step 1	**pwd** **Example:** vsg# pwd	Displays the directory name of your current location in the CLI.

This example shows how to display the directory name of your current location in the Cisco VSG CLI:

```
vsg# pwd
bootflash:
```

Changing Your Directory

You can change directories in the CLI.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.
- The Cisco VSG CLI defaults to the bootflash: file system.

Note Any file saved in the volatile: file system is erased when the Cisco VSG reboots.

SUMMARY STEPS

1. **pwd**
2. **cd** *directory_name*

DETAILED STEPS

	Command	Purpose
Step 1	**pwd** **Example:** `vsg# pwd`	Displays the directory name of your current CLI location.
Step 2	**cd** *directory_name* **Example:** `vsg# cd bootflash:`	Changes your CLI location to the specified directory.

This example shows how to display the directory name of the current Cisco VSG CLI location and how to change the CLI location to the specified directory:

```
vsg# pwd
bootflash:
vsg# cd volatile:
vsg# pwd
volatile:
vsg#
```

Listing the Files in a File System

You can display the contents of a directory or file.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **dir** [*directory* | *filename*]

DETAILED STEPS

	Command	Purpose
Step 1	**dir** [*directory* | *filename*] **Example:** vsg# dir TenantA/	Displays the contents of a directory or file. Ending an argument with a slash indicates a directory and displays the contents of that directory.

This example shows how to display the contents of a directory:

```
vsg# dir lost+found/
      49241     Jul 01 09:30:00 2008  diagclient_log.2613
      12861     Jul 01 09:29:34 2008  diagmgr_log.2580
         31     Jul 01 09:28:47 2008  dmesg
       1811     Jul 01 09:28:58 2008  example_test.2633
         89     Jul 01 09:28:58 2008  libdiag.2633
      42136     Jul 01 16:34:34 2008  messages
         65     Jul 01 09:29:00 2008  otm.log
        741     Jul 01 09:29:07 2008  sal.log
         87     Jul 01 09:28:50 2008  startupdebug

Usage for log://sup-local
   51408896 bytes used
  158306304 bytes free
  209715200 bytes total
vsg#
```

Identifying Available File Systems for Copying Files

You can identify the file systems that you can copy to or from.

BEFORE YOU BEGIN

Before using this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **copy ?**
2. **copy filename ?**

DETAILED STEPS

	Command	Purpose
Step 1	**copy ?** **Example:** vsg# copy ?	Displays the source file systems available to the **copy** command.
Step 2	**copy filename ?** **Example:** vsg# copy filename ?	Displays the destination file systems available to the **copy** command for a specific file.

This example shows how to display the source file systems available to the **copy** command:

```
vsg# copy ?
bootflash: Select source filesystem
core: Select source filesystem
debug: Select source filesystem
ftp: Select source filesystem
licenses Backup license files
log: Select source filesystem
nvram: Select source filesystem
running-config Copy running configuration to destination
scp: Select source filesystem
sftp: Select source filesystem
startup-config Copy startup configuration to destination
system: Select source filesystem
tftp: Select source filesystem
volatile: Select source filesystem
```

This example shows how to display the destination file systems available to the **copy** command for the specific file named:

```
vsg# copy filename ?
  bootflash:      Select destination filesystem
  debug:          Select destination filesystem
  ftp:            Select destination filesystem
  log:            Select destination filesystem
  modflash:       Select destination filesystem
  nvram:          Select destination filesystem
  running-config  Copy from source to running configuration
  scp:            Select destination filesystem
  sftp:           Select destination filesystem
  startup-config  Copy from source to startup configuration
  system:         Select destination filesystem
  tftp:           Select destination filesystem
  volatile:       Select destination filesystem
```

Using Tab Completion

You can have the CLI complete a partial filename in a command.

BEFORE YOU BEGIN

Before using this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **show file** *filesystem name: partial filename* <**Tab**>
2. **show file** *bootflash:c* <**Tab**>

DETAILED STEPS

	Command	Purpose
Step 1	**show file** *filesystem name: partial filename* **<Tab>** **Example:** `vsg# show file bootflash:sanfrancisc`	Completes the filename when Tab is pressed, if the characters you typed are unique to a single file. If not, the CLI lists a selection of filenames that match the characters you typed. You can then retype enough characters to make the filename unique. The CLI completes the filename for you.
Step 2	**show file bootflash:c <Tab>** **Example:** `vsg# show file bootflash:c`	Completes the filename for you.

This example shows how to display a selection of available files when you press Tab after you have typed enough characters that are unique to a file or set of files:

```
VSG# show file bootflash:nex<Tab>
bootflash:nexus-1000v-dplug-mzg.VSG1.0.1.bin
bootflash:nexus-1000v-kickstart-mzg.VSG1.0.1.bin
bootflash:nexus-1000v-mzg.VSG1.0.1.bin
bootflash:nexus-1000v-mzg.VSG1.0.2.bin
```

This example shows how to complete a command by pressing the Tab key when you have already entered the first unique characters of a command:

```
vsg# show file bootflash:c<Tab>
-----BEGIN RSA PRIVATE KEY-----
MIICXgIBAAKBgQDSq93BrlHcg3bX1jXDMY5c9+yZSST3VhuQBqogvCPDGeLecA+j
...
...
vsg#
```

Copying and Backing Up Files

You can copy a file, such as a configuration file, to save it or reuse it at another location. If your internal file systems are corrupted, you could potentially lose your configuration. Save and back up your configuration files periodically. Also, before installing or migrating to a new software configuration, back up the existing configuration files.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.
- If you are copying to a remote location, make sure that your device has a route to the destination. Your device and the remote destination must be in the same subnetwork if you do not have a router or default gateway to route traffic between subnets.
- Using the **ping** command to make sure that your device has connectivity to the destination.
- Make sure that the source configuration file is in the correct directory on the remote server.

- Make sure that the permissions on the source file are set correctly. Permissions on the file should be set to world-read.

Note Use the **dir** command to ensure that enough space is available in the destination file system. If enough space is not available, use the **delete** command to remove unneeded files.

SUMMARY STEPS

1. **copy** [*source filesystem*:] *filename* [*destination filesystem*:] *filename*

DETAILED STEPS

	Command	Purpose
Step 1	**copy** [*source filesystem*:] *filename* [*destination filesystem*:] *filename* **Example:** `vsg# copy system:running-config tftp://10.10.1.1./home/configs/vsg2.cfg`	Copies a file from the specified source location to the specified destination location.

This example shows how to copy a file from a specified source location and move it to a specified destination location:

```
vsg# copy system:running-config tftp://10.10.1.1/home/configs/vsg3-run.cfg
Enter vrf (If no input, current vrf 'default' is considered):
Trying to connect to tftp server......
Connection to Server Established.
TFTP put operation succesful
vsg#
```

Creating a Directory

You can create a directory at the current directory level or at a specified directory level.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **mkdir** {**bootflash:** | **debug:** | **volatile:**} *directory-name*

DETAILED STEPS

	Command	Purpose
Step 1	**mkdir** {**bootflash:** | **debug:** | **volatile:**} *directory-name* **Example:** vsg# mkdir bootflash:new-directory	Creates a directory at the current directory level.

This example shows how to create a directory called test in the bootflash: directory:

```
vsg# mkdir bootflash:test
vsg#
```

This example shows how to create a directory called test at the current directory level:

```
vsg# mkdir test
vsg#
```

Removing an Existing Directory

You can remove an existing directory from the flash file system.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.
- This command is only valid on flash file systems.
- Before you can remove it, the directory must be empty.

SUMMARY STEPS

1. **rmdir** {**bootflash:** | **debug:** | **volatile:**} *directory*

DETAILED STEPS

	Command	Purpose
Step 1	**rmdir** {**bootflash:** | **debug:** | **volatile:**} *directory* **Example:** vsg# rmdir bootflash:new-directory	Removes a directory as long as the directory is empty.

This example shows how to remove the directory called test in the bootflash: directory:

```
vsg# rmdir bootflash:test
vsg#
```

This example shows how to remove the directory called test at the current directory level:

```
vsg# rmdir test
vsg#
```

Moving Files

You can move a file from one location to another location.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.
- The copy does not complete if there is not enough space in the destination directory.

Caution If a file with the same name already exists in the destination directory, that file is overwritten by the file that you move.

SUMMARY STEPS

1. **move** {*source path and filename*} {*destination path and filename*}

DETAILED STEPS

	Command	Purpose
Step 1	**move** {*source path and filename*} {*destination path and filename*} **Example:** `vsg# move bootflash:file1 bootflash:mystuff/file1`	Moves a directory.

This example shows how to move a file from one directory to another in the same file system:

```
vsg# move bootflash:samplefile bootflash:mystorage/samplefile
```

This example shows how to move a file from one directory to another in the current file system:

```
vsg# move samplefile mystorage/samplefile
```

Deleting Files or Directories

You can delete files or directories on a Flash memory device.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- If you try to delete the configuration file or image specified by the CONFIG_FILE or BOOTLDR environment variable, the system prompts you to confirm the deletion.
- If you try to delete the last valid system image specified in the BOOT environment variable, the system prompts you to confirm the deletion.

SUMMARY STEPS

1. **delete** [**bootflash:** | **debug:** | **log:** | **volatile:**] *filename or directory name*

DETAILED STEPS

	Command	Purpose
Step 1	**delete** [**bootflash:** | **debug:** | **log:** | **volatile:**] *filename or directory name* **Example:** vsg# delete log:test-log	Deletes a specified file or directory and everything in the directory.

This example shows how to delete the named file from the current working directory:

```
vsg# delete bootflash:dns_config.cfg
```

This example shows how to delete the named directory and its contents:

```
vsg# delete log:my-log
```

Compressing Files

You can compress (zip) a specified file using LZ77 coding.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.

SUMMARY STEPS

1. **show** *command* > [*path*] *filename*
2. **dir**
3. **gzip** [*path*] *filename*

DETAILED STEPS

	Command	Purpose
Step 1	**show** *command* > [*path*] *filename* **Example:** vsg# show pwd > pwdfile	Directs **show** command output to a file.

	Command	Purpose
Step 2	**dir** **Example:** vsg# dir	Displays the contents of the current directory, including the new file created in the first step.
Step 3	**gzip** [*path*] *filename* **Example:** vsg# gzip bootflash:errorsfile	Compresses the specified file.

This example shows how to display and then compress a specified file:

```
vsg# show system internal sysmgr event-history errors > errorsfile
vsg# dir
    1480264     Nov 03 08:38:21 2001  1
      77824     Dec 08 11:17:45 2001  accounting.log
       4096     Nov 30 14:35:15 2001  core/
       3220     Dec 09 16:33:05 2001  errorsfile
         4096     Nov 30 14:35:15 2001  log/
      16384     Nov 03 08:32:09 2001  lost+found/
       7456     Dec 08 11:17:41 2001  mts.log
    1480264     Nov 03 08:33:27 2001  nexus-1000v-dplug-mzg.VSG1.0.1.bin
   20126720     Nov 03 08:33:27 2001  nexus-1000v-kickstart-mzg.VSG1.0.1.bin
   45985810     Dec 01 14:30:00 2001  nexus-1000v-mzg.VSG1.0.1.bin
   46095447     Dec 07 11:32:00 2001  nexus-1000v-mzg.VSG1.0.396.bin
       1714     Dec 08 11:17:33 2001  system.cfg.new
       4096     Nov 03 08:33:54 2001  vdc_2/
       4096     Nov 03 08:33:54 2001  vdc_3/
       4096     Nov 03 08:33:54 2001  vdc_4/

Usage for bootflash://
  631246848 bytes used
5772722176 bytes free
6403969024 bytes total
```

This example shows how to compress the specified file:

```
vsg# gzip bootflash:errorsfile
vsg# dir
    1480264     Nov 03 08:38:21 2001  1
      77824     Dec 08 11:17:45 2001  accounting.log
       4096     Nov 30 14:35:15 2001  core/
        861     Dec 09 16:33:05 2001  errorsfile.gz
         4096     Nov 30 14:35:15 2001  log/
      16384     Nov 03 08:32:09 2001  lost+found/
       7456     Dec 08 11:17:41 2001  mts.log
    1480264     Nov 03 08:33:27 2001  nexus-1000v-dplug-mzg.VSG1.0.1.bin
   20126720     Nov 03 08:33:27 2001  nexus-1000v-kickstart-mzg.VSG1.0.1.bin
   45985810     Dec 01 14:30:00 2001  nexus-1000v-mzg.VSG1.0.1.bin
   46095447     Dec 07 11:32:00 2001  nexus-1000v-mzg.VSG1.0.396.bin
       1714     Dec 08 11:17:33 2001  system.cfg.new
       4096     Nov 03 08:33:54 2001  vdc_2/
       4096     Nov 03 08:33:54 2001  vdc_3/
       4096     Nov 03 08:33:54 2001  vdc_4/

Usage for bootflash://
  631246848 bytes used
5772722176 bytes free
6403969024 bytes total
vsg#
```

Uncompressing Files

You can uncompress (unzip) a specified file that is compressed using LZ77 coding.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.

SUMMARY STEPS

1. **gunzip** [*path*] *filename*
2. **dir**

DETAILED STEPS

	Command	Purpose
Step 1	**gunzip** [*path*] *filename* **Example:** vsg# gunzip bootflash:errorsfile.gz	Uncompresses the specified file.
Step 2	**dir** **Example:** vsg# dir	Displays the contents of a directory, including the newly uncompressed file.

This example shows how to uncompress a specified file:

```
vsg# gunzip bootflash:errorsfile.gz
vsg# dir bootflash:
    1480264     Nov 03 08:38:21 2001  1
      77824     Dec 08 11:17:45 2001  accounting.log
       4096     Nov 30 14:35:15 2001  core/
       3220     Dec 09 16:33:05 2001  errorsfile
       4096     Nov 30 14:35:15 2001  log/
      16384     Nov 03 08:32:09 2001  lost+found/
       7456     Dec 08 11:17:41 2001  mts.log
    1480264     Nov 03 08:33:27 2001  nexus-1000v-dplug-mzg.VSG1.0.1.bin
   20126720     Nov 03 08:33:27 2001  nexus-1000v-kickstart-mzg.VSG1.0.1.bin
   45985810     Dec 01 14:30:00 2001  nexus-1000v-mzg.VSG1.0.1.bin
   46095447     Dec 07 11:32:00 2001  nexus-1000v-mzg.VSG1.0.396.bin
       1714     Dec 08 11:17:33 2001  system.cfg.new
       4096     Nov 03 08:33:54 2001  vdc_2/
       4096     Nov 03 08:33:54 2001  vdc_3/
       4096     Nov 03 08:33:54 2001  vdc_4/

Usage for bootflash://sup-local
  631246848 bytes used
5772722176 bytes free
6403969024 bytes total
```

Directing Command Output to a File

You can direct command output to a file.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **show running-config >** [*path* | *filename*]

DETAILED STEPS

	Command	Purpose
Step 1	**show running-config >** [*path* | *filename*] **Example:** `vsg# show running-config > bootflash:vsg1-run.cfg`	Directs the output of the command to a path and file name.

This example shows how to direct the output of the command to the file vsg1-run.cfg in the volatile: directory:

```
vsg# show running-config > volatile:vsg1-run.cfg
```

This example shows how to direct the output of the command to the file vsg2-run.cfg in the bootflash: directory:

```
vsg# show running-config > bootflash:vsg2-run.cfg
```

Verifying a Configuration File Before Loading

You can verify the integrity of an image before loading it.

Note The **copy** command can be used for both the system and kickstart images.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

SUMMARY STEPS

1. **copy** *source path and file* **system:running-config**
2. **show version image** [**bootflash:** | **modflash:** |**volatile:**]

DETAILED STEPS

	Command	Purpose
Step 1	**copy** *source path and file* **system:running-config** **Example:** vsg# copy tftp://10.10.1.1./home/configs/vsg1-run.cfg system:running-config	Copies the source file to the running configuration.
Step 2	**show version image** [**bootflash:** | **modflash:** |**volatile:**] **Example:** vsg# show version image	Validates the specified image.

This example shows how to copy the source file to the running configuration:

```
vsg# copy tftp://10.10.1.1/home/configs/vsg1-run.cfg system:running-config
```

This example shows how to validate the specified image:

```
vsg# show version image bootflash:nexus-1000v-mz.VSG1.0.401.bin
  image name: nexus-1000v-mz.VSG1.0.401.bin
  bios:       version unavailable
  system:     version 4.2(1)VSG1(1) [build 4.2(1)VSG1(0.401)]
  compiled:   12/9/2010 2:00:00 [12/09/2010 15:20:50]
vsg#
```

Reverting to a Previous Configuration

You can recover your configuration from a previously saved version.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in any command mode.

Note Each time that you enter the **copy running-config startup-config** command, a binary file is created and the ASCII file is updated. A valid binary configuration file reduces the overall boot time significantly. A binary file cannot be uploaded, but its contents can be used to overwrite the existing startup configuration. Enter the **write erase** command to clear the binary file.

SUMMARY STEPS

1. **copy running-config bootflash:** {*filename*}
2. **copy bootflash:** {*filename*} **startup-configure**

DETAILED STEPS

	Command	Purpose
Step 1	**copy running-config bootflash:** {*filename*} **Example:** vsg# copy running-config bootflash:Jan24-running	Reverts to a snapshot copy of a previously saved running configuration (binary file).
Step 2	**copy bootflash:** {*filename*} **startup-configure** **Example:** vsg# copy bootflash:my-configure startup-configure	Reverts to a configuration copy that was previously saved in the bootflash: file system (ASCII file).

This example shows how to revert to a snapshot copy of a previously saved running configuration:

```
vsg# copy running-config bootflash:January03-Running
```

This example shows how to revert to a configuration copy that was previously saved in the bootflash: directory:

```
vsg# copy bootflash:my-configure startup-configure
```

Displaying Files

This section describes how to display information about files and includes the following topics:

- Displaying File Contents, page 4-27
- Displaying Directory Contents, page 4-28
- Displaying File Checksums, page 4-29
- Displaying the Last Lines in a File, page 4-29

Displaying File Contents

You can display the contents of a specified file.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **show file** [**bootflash:** | **debug:** | **volatile:**] *filename*

DETAILED STEPS

	Command	Purpose
Step 1	**show file** [**bootflash:** | **debug:** | **volatile:**] *filename* **Example:** vsg# show file bootflash:sample_file.txt	Displays the contents of the specified file.

This example shows how to displays the contents of the specified file:

```
vsg# show file bootflash:sample_file.txt
security-profile sp1
  policy p1
rule r1
  action 10 permit
policy p1
  rule r1 order 10

vsg#
```

Displaying Directory Contents

You can display the contents of a directory or file system.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **pwd**
2. **dir**

DETAILED STEPS

	Command	Purpose
Step 1	**pwd** **Example:** vsg# pwd	Displays the current working directory.
Step 2	**dir** **Example:** vsg# dir	Displays the contents of the directory.

This example shows how to display your current working directory:

```
vsg# pwd
bootflash:
```

This example shows how to display the contents of a directory:

```
vsg# dir
Usage for volatile://
          0 bytes used
   20971520 bytes free
   20971520 bytes total
vsg#
```

Displaying File Checksums

You can display checksums for checking file integrity.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **show file** *filename* [**cksum** | **md5sum**]

DETAILED STEPS

	Command	Purpose
Step 1	**show file** *filename* [**cksum**	**md5sum**] **Example:** vsg# show file bootflash:sample_file.txt chksum	Provides the checksum or Message-Digest Algorithm 5 (MD5) checksum of the file for comparison with the original file. MD5 is an electronic fingerprint for the file.

This example shows how to provide the checksum or MD5 checksum of the file for comparison with the original file.

```
vsg# show file bootflash:sample_file.txt cksum
750206909
vsg#
```

This example shows how to provide the MD5 checksum of the file:

```
vsg# show file bootflash:sample_file.txt md5sum
aa163ec1769b9156614c643c926023cf
vsg#
```

Displaying the Last Lines in a File

You can display the last lines of a specified file.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **tail** {*path*}[*filename*] {*number-of-lines*}

DETAILED STEPS

	Command	Purpose
Step 1	**tail** {*path*}[*filename*] {*number-of-lines*} **Example:** vsg# tail bootflash:errorsfile 5	Displays the requested number of lines from the end of the specified file. The range for the number-of-lines argument is from 0 to 80.

This example shows how to display the requested number of lines from the end of a specified file:

```
vsg# tail bootflash:errorsfile 5
(20) Event:E_DEBUG, length:34, at 171590 usecs after Tue Jul  1 09:29:05 2008
    [102] main(326): stateless restart
vsg#
```

Displaying the Current User Access

You can display all users currently accessing the Cisco VSG.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.

SUMMARY STEPS

1. **show users**

DETAILED STEPS

	Command	Description
Step 1	**show users** **Example:** vsg# show users	Displays a list of users who are currently accessing the Cisco VSG.

This example shows how to display a list of users who are currently accessing the Cisco VSG:

```
vsg# show users
NAME     LINE         TIME         IDLE          PID COMMENT
admin    pts/0        Jul  1 04:40 03:29        2915 (::ffff:64.103.145.136)
admin    pts/2        Jul  1 10:06 03:37        6413 (::ffff:64.103.145.136)
admin    pts/3        Jul  1 13:49   .          8835 (171.71.55.196)*
vsg#
```

Sending a Message to Users

You can send a message to all active users currently using the Cisco VSG.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged in to the CLI.

SUMMARY STEPS

1. **send** {**session** *device*} *line*

DETAILED STEPS

	Command	Description
Step 1	**send** {**session** *device*} *line* **Example:** `vsg# send System Shutdown in 10 Minutes`	Sends a message to users currently logged in to the system. You can use the following keyword and argument: • **session**: sends the message to a specified pts/tty device type. • *line* is a message of up to 80 alphanumeric characters.

This example shows how to send a message to all users:

```
vsg# send Hello. Shutting down the system in 10 minutes.
Broadcast Message from admin@vsg (/dev/pts/34) at 8:58 ...
Hello. Shutting down the system in 10 minutes.
vsg#
```