APPENDIX A

Command Line Interface Reference

This appendix describes the command line interface for the Cisco Application Deployment Engine Operating System (ADE OS), version 1.2.

This appendix contains the following sections:

About the ADE OS CLI

Cisco ANM Virtual Appliance runs on the Cisco Application Deployment Engine (ADE) operating system, version 1.2. The operating system includes its own IOS-like command line interface where you can perform basic setup and monitoring tasks for the virtual appliance.

This appendix describes the commands in the ADE OS CLI. Each command is accompanied by a brief description, syntax and usage guidelines, and one or more examples.

The commands are organized by mode, as follows:

- EXEC—Use the commands in this mode to perform system-level configuration. In addition, certain EXEC mode commands have ANM-specific abilities. See "EXEC Commands" section on page A-6 and "Show Commands" section on page A-59.
- Configuration—Use the commands in this mode to perform additional configuration tasks for ANM Virtual Appliance. Use the EXEC mode system-level **configure** command to access the Configuration mode. "Configuration Commands" section on page A-92.

ADE OS Commands Not Supported by ANM Virtual Appliance

ADE OS is designed for general networking management applications. The CLI includes several functions not intended for use with ANM Virtual Appliance and which are not documented in this appendix.

The ADE OS commands not intended for use with ANM Virtual Appliance include the following:

- **application install**
- **application remove**

User Accounts and Modes in ANM Virtual Appliance

As described in the "User Accounts and Modes" section on page 4-3, there are two different types of accounts available on ANM Virtual Appliance:

- Admin (administrator)
- Operator (user)

Table A-1 lists the command privileges for each type of user account.

Table A-1 Command Privileges

	User Account	
Command	**Admin**	**Operator (User)**
anm-certificate install	P	—
anm-data-export audit	P	—
anm-data-export history	P	—
anm-license install	P	—
anm-tool configure	P	—
anm-tool restart	P	—
anm-tool load-inventory	P	—
access-setting accept-all	P	—
application commands	P	—
backup	P	—
backup-logs	P	—
cdp run	P	—
clock	P	—
configure terminal	P	—
copy commands	P	—
debug	P	—
debug-adclient	P	—
debug-log	P	—
delete	P	—
dir	P	—
end	P	—
exit	P	P
export-data	P	—
forceout	P	—
halt	P	—
hostname	P	—
icmp	P	—
import-data	P	—

Table A-1 Command Privileges (continued)

Command	User Account	
	Admin	Operator (User)
import-export-abort	P	—
import-export-status	P	—
interface	P	—
ip default-gateway	P	—
ip domain-name	P	—
ip name-server	P	—
ip route	P	—
kron	P	—
logging commands	P	—
mkdir	P	—
nslookup	P	P
ntp server	P	—
password policy	P	—
patch	P	—
ping	P	P
reload	P	—
replication	P	—
repository	P	—
reset-management-interface-certificate	P	—
restore commands	P	—
rmdir	P	—
service	P	—
show application	P	—
show backup	P	—
show cdp	P	P
show clock	P	P
show cpu	P	P
show debug-adclient	P	—
show debug-log	P	—
show disks	P	P
show icmp_status	P	P
show interface	P	P
show inventory	P	P
show ip route	P	—
show logging	P	P

Table A-1 Command Privileges (continued)

Command	User Account	
	Admin	Operator (User)
show logins	P	P
show memory	P	P
show ntp	P	P
show ports	P	P
show process	P	P
show repository	P	—
show restore	P	—
show running-configuration	P	—
show startup-configuration	P	—
show tac	P	—
show tech-support	P	—
show terminal	P	P
show timezone	P	P
show timezones	P	—
show udi	P	P
show uptime	P	P
show users	P	—
show version	P	P
snmp-server commands	P	—
ssh	P	P
ssh keygen	P	P
ssh rmkey	P	P
tech	P	—
telnet	P	P
terminal	P	P
traceroute	P	P
undebug	P	—
username	P	—
write	P	—

Information About Command Output Modifiers

This section describes the command output modifiers that are available with a number of the ADE OS commands, including all the **show** commands. The modifiers are a vertical bar (|) that allows you to filter the command output and an angle bracket (**>**) that allows you to redirect the command output.

For example, the syntax for the show command is as follows:

show *keyword* [| {**begin** *pattern* | **count** | **end** *pattern* | **exclude** *pattern* | **include** *pattern* | **next** | **prev**}] [**>** {*filename* **disk:**[*path/*][*filename*] | **ftp:**//*server/path*[*/filename*] | **sftp:**//[*username*@]*server/path*[*/filename*] | **tftp:**//*server*[*:port*]*/path*[*/filename*]}]

The *keyword* argument represents a specific item to display, such as **application**, **interface**, or **running-config** (for details, see show, page A-45). The command modifier syntax descriptions are as follows:

|	(Optional) Enables an output modifier that filters the command output.
begin *pattern*	Begins with the line that matches the pattern that you specify.
count	Counts the number of lines in the output.
end *pattern*	Ends with the line that matches the pattern that you specify.
exclude *pattern*	Excludes the lines that match the pattern that you specify.
include *pattern*	Includes the lines that match the pattern that you specify.
next	Displays the lines next to the matching pattern that you specify.
prev	Displays the lines before the matching pattern that you specify.
>	(Optional) Enables an output modifier that redirects the command output to a file.
filename	Name of the file that the ACE saves the output to on the volatile: file system.
disk:	Specifies that the destination is the ANM disk: file system.
[*path/*][*filename*]	(Optional) Path and filename to the disk: file system. This path is optional because ANM prompts you for this information if you omit it.
ftp://*server/path*[*/filename*]	Specifies the File Transfer Protocol (FTP) network server and optional filename.
sftp://*server/path*[*/filename*]	Specifies the Secure File Transfer Protocol (SFTP) network server and optional filename. A single forward slash (/) after *server* makes the path relative to the user's home directory. Two forward slashes (//) after *server* makes the path relative to the root directory.
tftp://*server*[*:port*]*/path* [*/filename*]	Specifies the Trivial File Transfer Protocol (TFTP) network server and optional filename. A single forward slash (/) after *server* makes the path relative to the user's home directory. Two forward slashes (//) after *server* makes the path relative to the root directory.

EXEC Commands

This section lists and describes the EXEC commands. Each command includes a brief description of its use, command syntax, usage guidelines, and sample output.

Table A-2 provides a list of the EXEC commands. Each command provides a link to its details.

Table A-2 List of EXEC Commands

• anm-certificate install • anm-data-export audit from • anm-data-export history from • anm-license install • anm-sysinfo • anm-tool configure • anm-tool load-inventory • anm-tool restart • application install • application remove • application reset-config • application start • application stop • application upgrade • backup • backup-logs • clock set	• configure terminal • copy • debug • delete • dir • exit • forceout • halt • help • mkdir • nslookup • patch install • ping • reload	• restore • rmdir • show (see Show Commands) • ssh • tech dumptcp • telnet • terminal length • terminal session-timeout • terminal session-welcome • terminal terminal-type • traceroute • undebug • write

anm-certificate install

To install a third party server certificate/key pair for ANM Virtual Appliance, use the **anm-certificate install** command. The ANM VA software installation process includes a self-signed certificate/key pair for authenticating itself to browser clients; however, you can choose not to use it by installing a third party certificate/key pair.

Caution Installing a third party certificate/key pair overwrites the self-signed certificate/key pair included with the ANM VA software. There is no documented way to revert to the self-signed certificate/key pair after you install a third party certificate/key pair.

Note The **anm-certificate install** command is not used to load certificates used by managed devices to establish network traffic connections; device certificates are loaded from within the ANM web interface.

The syntax for this command is as follows:

anm-certificate install *certificate-file key-file* [*passphrase*]

Syntax Description

certificate-file	Certificate file should be a valid server certificate generated for this ANM Virtual Appliance. The file should reside at the *disk:* location of the file system of the virtual appliance. Use the **copy** command to move the file to the virtual appliance file system.
key-file	Private key associated with the certificate you are loading on ANM Virtual Appliance.
passphrase	(Optional) Encryption passphrase, which is required only if the key is encrypted. If the passphrase contains spaces, enclose it with double quotes (for example, “pass phrase”). If it contains a question mark symbol, press **Ctrl-v** before typing the question mark to override the help display.

Defaults

No default behavior or values.

Command Modes

EXEC

Examples

```
anm-va/admin# copy sftp://staging-server/certificates/myserver.cert disk:
anm-va/admin# copy sftp://staging-server/certificates/myserver.key disk:
anm-va/admin# anm-certificate install disk:myserver.cert disk: myserver.key
```

anm-data-export audit from

To export audit log information from ANM Virtual Appliance, use the **anm-data-export audit from** command in the EXEC mode.

This command generates an archive file that contains audit-related information for the ANM application. Audit log information consists of the information shown in the Device Audit and ANM Change Audit Log pages of the ANM web interface. It includes, for example, user login attempts and configuration deployments to devices.

The command generates an archive of audit logs that occurred within a date range you specify. The resulting archive is placed on the virtual appliance disk.

anm-data-export audit from *start* [**to** *end*] **disk:***file*

Syntax Description

start	Starting date of the range of information to be exported, where date is in YYYY-MM-DD format (for example, 2010-09-08 for September 8, 2010).
to *end*	(Optional) End date of the range of information to be exported, where date is in YYYY-MM-DD format (for example, 2010-11-09 for November 9, 2010). If this argument is omitted, all data newer than the starting date is exported.
disk:*file*	Filename to which the data will be exported. The final file name will be *file*-audit.tgz.

Defaults

No default behavior or values.

Command Modes

EXEC

Examples

```
anm-va/admin# anm-data-export audit from 2010-03-22 disk:/logfiles/marchlogs
```

anm-data-export history from

To export device history information from ANM Virtual Appliance, use the **anm-data-export history from** command in the EXEC mode.

This command generates an archive file that contains information related to the activities of the devices managed by ANM. “History information” refers to events related to device resource usage, load balancing activities, and traffic processing. Specifically, this information is equivalent to that shown on these ANM web interface pages:

- Monitor > Devices > Resource Usage
- Monitor > Devices > Load Balancing
- Monitor > Devices > Traffic Summary

The command generates an archive of history logs that occurred within a date range you specify.

anm-data-export history from *start* **[to** *end***] disk:***file*

Syntax Description

start	Starting date of the range of information to be exported, where date is in YYYY-MM-DD format (for example, 2010-09-08 for September 8, 2010).
to *end*	(Optional) End date of the range of information to be exported, where date is in YYYY-MM-DD format (for example, 2010-11-09 for November 9, 2010). If this argument is omitted, all data newer than the starting date is exported.
disk:*file*	Filename to which the data will be exported. The final file name will be *file*-history.tgz.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

This command places an archive of the logs on the virtual appliance disk. From there, it can be copied to a remote system using the copy command.Note however, that the backup-logs command collects files that include the results of the anm-data-export operation. Thus, backup-logs can be used to automate the transfer of exported audit and history data files to a remote location.

Examples

```
anm-va/admin# anm-data-export history from 2010-03-22 disk:/logfiles/marchlogs
```

anm-license install

To apply the site-specific license for the ANM application, use the **anm-license install** command. A valid license enables you to use ANM Virtual Appliance to manage network devices. Each ANM Virtual Appliance should have its own, MAC-address-bound license (for more information, see "Acquiring a License for ANM Virtual Appliance" section on page 3-3).

anm-license install *license-file*

Syntax Description

license-file	License file should be a valid license generated for this ANM Virtual Appliance. The license file should reside on the disk: file system of the virtual appliance. You can use the copy command to move the license to the virtual appliance file system.

Defaults

No default behavior or values.

Command Modes

EXEC

Examples

```
anm-va/admin# copy tftp://staging-server/licenses/anm-4.2-XXXXXX.lic disk:
anm-va/admin# anm-license install disk:anm-4.2-XXXXXX.lic
```

anm-sysinfo

To create the ANM lifeline file (anm-lifeline.tar.gz) under disk:, use the **anm-sysinfo** command. After you create the lifeline file, you can use the **copy** command to place a copy of the file on a remote server.

anm-sysinfo

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Create a Lifeline package after you encounter a problem that might require customer support assistance. The package is meant to be viewed by customer support and works as follows:

- Lifeline collects debug data from diagnostic generators based on priority - most important to least important. When the total data size reaches 200MB, the collector stops collecting, and data from generators with lower priorities can be lost. For details on content, size, time, state, and any dropped data, see the Readme file included in each Lifeline package.
- Lifeline collects the last 25 MB of data from the file and truncates the beginning content.
- Lifelines are automatically packaged by the system in zip files. The naming convention for a lifeline package is "lifeline-yyMMdd-hhmmss.zip". For example, lifeline-07062-152140.zip is a Lifeline package created at 3:21:40 PM, June 22, 2007.
- Only one Lifeline package is created at a time. The system will reject a second request made before the first Lifeline has been packaged.
- Lifeline times out in 60 minutes.
- A maximum of 20 Lifeline packages are stored at a time.

Examples

```
anm-va/admin# anm-sysinfo
```

anm-tool configure

To modify the settings of the web server component of ANM Virtual Appliance, use the **anm-tool configure** command. These settings specify whether the ANM web interface is accessible by HTTP or HTTPS. They also specify the listening ports for these protocols. These settings are typically configured upon initial setup of ANM Virtual Appliance. This command allows you to re-initiate the configuration sequence for the component.

When used with the optional **advanced-options** keyword, the configuration sequence includes prompts applicable to the web server that serves requests for the ANM Web Service API. The Web Service API provides SOAP-based programmatic access to the functionality of ANM. By default, it is disabled. You can enable it using this option.

The advanced options settings, along with their defaults, are:

- HTTP Port of Web Services [8080]
- Enable HTTP for Web Services [false]
- HTTPS Port of Web Services [8443]
- Enable HTTPS for Web Services [false]
- Idle session timeout in msec [1800000]—Applies to user sessions for the ANM GUI. Users who are idle for an amount of time greater than this value are automatically logged off the application. By default, this setting is 1800000 milliseconds, or 30 minutes.
- Change the memory available to ANM process [low]—Adjusts amount of available memory for use by ANM. Check the available physical memory; if it is less than 3.5 G, then set the memory size to **low** (1 G), which is the default. If the available physical memory is greater than 3.5 G, set the memory size to **high** (2 G).

Note To complete the configuration change, the ANM processes must be restarted, which may interfere with active sessions in the ANM web interface.

anm-tool configure [**advanced-options**]

Syntax Description

advanced-options	(Optional) Enables configuring of the web services attributes

Defaults

No default behavior or values.

Command Modes

EXEC

Examples

```
anm-tmp/admin# anm-tool configure
Configuring ANM

Checking ANM configuration files
  Keep existing ANM configuration? [y/n]: n
  Creating config file (/opt/CSCOanm/etc/cs-conf ig.properties)

Enable HTTP for Web Server [false]:
```

```
Inbound Port for HTTP traffic to AIIM Default [80]:
Enable HTTPS for Web Server [false]:
Inbound Port for HTTPS traffic to AIIM Default [443]: 10443

These are the values:
Enable HTTP for Web Server: false
Inbound Port for HTTP traffic to AIIM Default: 8080
Enable HTTPS for Web Server: true
Inbound Port for HTTPS traffic to AIIM Default: 10443

Commit these values? [y/n/q]: y
Committing values ... done
 Keeping existing configuration: /opt/CSCOanm/lib/java/thirdparty/ctm_config.txt

Stopping services
   Stopping monit services (/etc/monit.conf) ... (0)
   Stopping monit ... Stopped
   Stopping heartbeat ... Stopped

Installing system configuration files

Setting service attributes
  Enabling rnysql for SELinux
setsebool: SELinux is disabled.
  Service monit is started by OS at boot time

Starting mysql ... Started
Action detected configure
mysql status ... Ready

Configuring mysql
  Checking mysql user/password
  Setting mysql privileges
  Disabling mysql replication

Starting services
  Starting monit ...Starting monit daemon with http interface at [#:2812]
  Started
```

anm-tool load-inventory

To load the inventory of ANM devices on ANM VA using backup created on an ANM server, use the **anm-tool load-inventory** command.

anm-tool load-inventory disk:*filename*

Syntax Description

filename	Name of the backup file created on an ANM server.

Defaults

No default behavior or values.

Command Modes

EXEC

Examples

```
anm-tmp/admin# anm-tool load-inventory anmbackup
```

anm-tool restart

To restart ANM services, use the **anm-tool restart** command. This command starts the ANM application services only and not those of the underlying operating system.

Syntax Description No keywords or arguments.

Defaults No default behavior or values.

Command Modes EXEC

Examples

```
anm-tmp/admin# anm-tool restart

Stopping services
   Stopping monit services (/etc/monit.conf) ... (0)
   Stopping monit ... Stopped
   Stopping heartbeat ... Stopped

Starting services
  Starting monit ...Starting monit daemon with http interface at [#:2812]
  Started
```

application install

This command is not supported by the Cisco ANM Virtual Appliance.

application remove

This command is not supported by the Cisco ANM Virtual Appliance.

application reset-config

To change the ANM admin password and reset the ANM application configuration to factory defaults, use the **application reset-config** command in the EXEC mode. This command allows you to reset the settings applicable to the web server component of the ANM application to their default states, as shown in the following table:

Setting	Default
Enable HTTP for Web Server	false
Inbound Port for HTTP traffic to ANM Default	80
Enable HTTPS for Web Server	false
Inbound Port for HTTPS traffic to ANM Default	443
HTTP Port of Web Services	8080
Enable HTTP for Web Services	false
HTTPS Port of Web Services	8443
Enable HTTPS for Web Services	false
Idle session timeout in msec	1800000
Change the memory available to ANM process [low|high]	low

application reset-config *application-name*

Syntax Description

application-name	Name of the application to reset its configuration to factory defaults; **ANM** (in all capital letters) in the case of ANM Virtual Appliance.

Defaults

No default behavior or values.

Command Modes

EXEC

Examples

```
anm-va/admin# application reset-config ANM

This will reset the configuration to default and prompt for the admin password
Proceed? yes/[no] yes

Enter the ANM admin user password:
Re-enter the ANM admin user password:

  Creating config file (/opt/CSCOanm/etc/cs-config.properties)
Committing default values:
Enable HTTP for Web Server: false
Inbound Port for HTTP traffic to ANM Default: 80
Enable HTTPS for Web Server: true
Inbound Port for HTTPS traffic to ANM Default: 443
HTTP Port of Web Services: 8080
Enable HTTP for Web Services: false
```

```
HTTPS Port of Web Services: 8443
Enable HTTPS for Web Services: false
Idle session timeout in msec: 1800000
done

Stopping services
  Stopping monit services (/etc/monit.conf) ...   (0)
  Stopping monit ...  Stopped
  Stopping heartbeat ...  Stopped

Installing system configuration files

Setting service attributes
  Enabling mysql for SELinux
setsebool:  SELinux is disabled.
  Service monit is started by OS at boot time

Starting mysql ... Started
Action detected reset-config
mysql status ... Ready

Configuring mysql
  Checking mysql user/password
  Setting mysql privileges
  Disabling mysql replication

Starting services
  Starting monit ...Starting monit daemon with http interface at [*:2812]
  Started
Applying password changes
.......

Application successfully reset configuration
```

application start

To start the ANM processes, use the **application start** command in the EXEC mode with the **ANM** argument.

Note ANM is the only application installed on ANM Virtual Appliance and therefore is the only application subject to this command.

application start *application-name*

Syntax Description

application-name	Name of the application that you want to enable; **ANM** (in all capital letters) in the case of ANM Virtual Appliance.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Starts the ANM application. You can use **show application status ANM** to verify that processes have started.

Examples

```
anm-va/admin# application start ANM

Starting services
  Starting monit ...Starting monit daemon with http interface at [#:2812]
  Started
```

application stop

To stop the ANM application processes, use the **application stop** command in the EXEC mode with the **ANM** argument.

Note Note that ANM is the only application installed on ANM Virtual Appliance and therefore is the only application subject to this command.

application stop *application-name*

Syntax Description

application-name	Name of the predefined application that you want to disable; **ANM** (in all capitol letters) in the case of ANM Virtual Appliance.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Stops the ANM application. You can use **show application status ANM** to verify that processes are stopped.

Examples

```
anm-va/admin# application stop ANM

Stopping services
   Stopping monit services (/etc/monit.conf) ... (0)
   Stopping monit ... Stopped
   Stopping heartbeat ... Stopped
```

application upgrade

To upgrade the ANM application software, use the **application upgrade** command in the EXEC mode.

application upgrade *application-bundle remote-repository-name*

Syntax Description

application-bundle	Name of the application to be upgraded.
application-name	Name of the remote repository where the application update bundle is located.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Upgrades the application, preserving any configuration data.

Examples

```
anm-va/admin# application upgrade anmexpress myremoterepository
```

backup

To perform a backup of the ANM application and operating system data, use the **backup** command in the EXEC mode. The command generates an archive of the backup and places it in a repository.

backup *backup-name* **repository** *repository-name* **[application** *appl-name***]**

Syntax Description

backup_name	Name of backup file. Enter a maximum of 100 alphanumeric characters.
repository	Repository command.
repository_name	Name of the repository where the files should be backed up to.
application *appl_name*	(Optional) Specifies that the backup consists of the application data only. For ANM Virtual Appliance, the value for *appl_name* is ANM.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Performs a backup of the ANM configuration and operating system data and places the backup in a repository.

You can use the **show backup history** command to display the backup operations and determine whether they succeeded.

If the backup fails, you may be able to use the **show logging** command to view troubleshooting information.

Examples

```
anm-va/admin# backup mybackup repository myrepository
% Creating backup with timestamped filename: myback2-081007-2129.tar.gpg
```

backup-logs

To back up system logs, use the **backup-logs** command in the EXEC mode. To remove this function, use the **no** form of this command.

backup-logs *backup-name* **repository** *repository-name*

Syntax Description

backup-name	Name of one or more files to back up. Enter a maximum of 100 alphanumeric characters.
repository	Repository command.
repository-name	Location where files should be backed up to. Enter a maximum of 30 alphanumeric characters.

Defaults

This command backs up these files:

- ANM Virtual Appliance log files.
- ANM debug, audit, and diagnostic files.
- Tomcat log files.
- Database log files.

Command Modes

EXEC

Usage Guidelines

Backs up system logs.

Examples

```
anm-va/admin# backup-logs mysyslogs repository myrepository
% Creating log backup with timestamped filename: mysyslogs-100728-1913.tar.gz
```

clock set

To set the system clock, use the **clock set** command in the EXEC mode. The internal system clock is used for timestamps, scheduled tasks, and other purposes in the system. As a preferred alternative to setting the clock manually with this command, you can configure an NTP server, as described in "ntp server" section on page A-117.

clock set *month day hh:min:ss yyyy*

Syntax Description

month	Current month of the year by name. This can be a maximum of three alphabetic characters. For example, Jan for January.
day	Current day (by date) of the month. Value = 0 to 31. Up to two numbers.
hh:mm:ss	Current time in hours (24-hour format), minutes, and seconds.
yyyy	Current year (no abbreviation).

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Sets the system clock. You must restart ANM Virtual Appliance for the changes to take effect.

Examples

```
anm-va/admin# clock set Jan 4 05:05:05 2010
```

configure terminal

To enter the Configuration mode, use the **configure** command in the EXEC mode.

configure terminal

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Use this command to enter the Configuration mode. Note that commands in this mode write to the running configuration file as soon as you enter them (press **Enter**).

To exit the Configuration mode and return to the EXEC mode, enter **end**, **exit**, or **Ctrl-z**.

To view the changes that you have made to the configuration, use the **show running-config** command in the EXEC mode.

Examples

```
anm-va/admin# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

copy

To copy any file from a source to a destination, use the **copy** command in the EXEC mode. The **copy** command in ANM copies a configuration (running or startup).

Running Configuration

The ANM active configuration is stored in RAM. Every configuration command you enter resides in the running configuration. If you reboot your ANM Virtual Appliance, you lose the configuration. If you make changes that you want to save, you must copy the running configuration to a safe location, such as a network server, or save it as the startup configuration.

Startup Configuration

You cannot edit a startup configuration directly. All commands that you enter store themselves in the running configuration, which you can copy into the startup configuration.

In other words, when you boot an ANM Virtual Appliance, the startup configuration becomes the initial running configuration. As you modify the configuration, the two diverge:

- The startup configuration remains the same.
- The running configuration reflects the changes that you have made.

If you want to make your changes permanent, you must copy the running configuration to the startup configuration.

The following command lines show some of the **copy** command scenarios available:

copy running-configuration startup-configuration

Copies the running configuration to the startup configuration. Replaces the startup-configuration with the running configuration.

Note If you do not save the running configuration, you will lose all your configuration changes during the next reboot of ANM Virtual Appliance. Once you are satisfied that the current configuration is correct, copy your configuration to the startup configuration with the preceding command.

copy startup-configuration running-configuration

Copies the startup configuration to the running configuration. Merges the startup configuration on top of the running configuration.

copy [*protocol***://***hostname***/***location*] **startup-configuration**

Copies but does not merge a remote file to the startup configuration.

copy [*protocol***://***hostname***/***location*] **running-configuration**

Copies and merges a remote file to the running configuration.

copy startup-configuration [*protocol***://***hostname***/***location*]

Copies the startup configuration to a remote system.

copy running-configuration [*protocol***://***hostname***/***location*]

Copies the running configuration to a remote system.

copy logs [*protocol***://***hostname***/***location*]

Copies log files from the system to another location.

Note The **copy** command is supported only for the local disk and not for a repository.

Syntax Description

running-config	Represents the current running configuration file.
startup-config	Represents the configuration file used during initialization (startup).
protocol	(Optional) The protocol used for the file transfer. The option supported by the ANM VA is ftp. The syntax for this alias is: `ftp:[[[//username [:password]@]location]/directory]/filename`
hostname	Hostname of destination.
location	Location of destination.
logs	System log files.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

The fundamental function of the **copy** command allows you to copy a file (such as a system image or configuration file) from one location to another location. The source and destination for the file can be a local disk location or a remote file location. The file system being used for the remote system dictates the syntax used in the command.

You can enter on the command line all the necessary source and destination information and the username and password to use; or, you can enter the **copy** command and have ANM Virtual Appliance prompt you for any missing information.

Timesaver Aliases reduce the amount of typing that you need to do. For example, type **copy run start** (the abbreviated form of the **copy running-config startup-config** command).

The entire copying process might take several minutes and differs from protocol to protocol and from network to network.

Use the filename relative to the directory for file transfers.

Examples

Example 1

```
anm-va/admin# copy run start
Generating configuration...
```

debug

To display verbose output for command operation, use the **debug** command in the EXEC mode. Debug mode produces extensive error and event information to the output screen, and can be useful for troubleshooting issues.

debug {**all** | **application** | **backup-restore** | **cdp** | **config** | **icmp** | **copy** | **locks** | **logging** | **snmp** | **system** | **transfer** | **user** | **utils**}

Syntax Description

all	Enables all debugging.
application	Application files. • *all*—Enables all application debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *install*—Enables application install debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *operation*—Enables application operation debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *uninstall*—Enables application uninstall debug output. Set level between 0 and 7 with 0 being severe and 7 being all.
backup-restore	Backs up and restores files. • *all*—Enables all debug output for backup-restore. Set level between 0 and 7 with 0 being severe and 7 being all. • *backup*—Enables backup debug output for backup-restore. Set level between 0 and 7 with 0 being severe and 7 being all. • *backup-logs*—Enables backup-logs debug output for backup-restore. Set level between 0 and 7 with 0 being severe and 7 being all. • *history*—Enables history debug output for backup-restore. Set level between 0 and 7 with 0 being severe and 7 being all. • *restore*—Enables restore debug output for backup-restore. Set level between 0 and 7 with 0 being severe and 7 being all.
cdp	CDP configuration files. • *all*—Enables all CDP configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *config*—Enables configuration debug output for CDP. Set level between 0 and 7 with 0 being severe and 7 being all. • *infra*—Enables infrastructure debug output for CDP. Set level between 0 and 7 with 0 being severe and 7 being all.

config	Configuration files. • *all*—Enables all configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *backup*—Enables backup configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *clock*—Enables clock configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *infra*—Enables configuration infrastructure debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *kron*—Enables command scheduler configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *network*—Enables network configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *repository*—Enables repository configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *service*—Enables service configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all.
copy	Copy commands. Set level between 0 and 7 with 0 being severe and 7 being all.
icmp	ICMP echo response configuration. *all*—Enables all logging configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all.
locks	Resource locking. • *all*—Enables all resource locking debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *file*—Enables file locking debug output. Set level between 0 and 7 with 0 being severe and 7 being all.
logging	Logging configuration files. *all*—Enables all logging configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all.
snmp	SNMP configuration files. *all*—Enables all SNMP configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all.
system	System files. • *all*—Enables all system files debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *id*—Enables system ID debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *info*—Enables system info debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *init*—Enables system init debug output. Set level between 0 and 7 with 0 being severe and 7 being all.
transfer	File transfer. Set level between 0 and 7 with 0 being severe and 7 being all.

user	User management. • *all*—Enables all user management debug output. Set level between 0 and 7 with 0 being severe and 7 being all. • *password-policy*—Enables user management debug output for password-policy. Set level between 0 and 7 with 0 being severe and 7 being all.
utils	Utilities configuration files. *all*—Enables all utilities configuration debug output. Set level between 0 and 7 with 0 being severe and 7 being all.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Use the **debug** command to identify various failures within ANM Virtual Appliance; for example, setup failures or configuration failures.

Examples

```
anm-va/admin# debug all
anm-va/admin# mkdir disk:/1
anm-va/admin# 6 [7178]: utils: vsh_root_stubs.c[2301]: mkdir operation success

anm-va/admin# rmdir disk:/1
anm-va/admin# 6 [7180]: utils: vsh_root_stubs.c[2171]: Invoked Remove Directory disk:/1
command 6 [7180]: utils: vsh_root_stubs.c[2228]: Remove Directory operation success

anm-va/admin# undebug all
anmvw-test8/admin# 7 [2826]: cdp:infra: ether-write.c[87]: WriteEther(): wrote len: 192
7 [2826]: cdp:infra: ether-write.c[112]: cdpd write succeed...
7 [2826]: cdp:infra: main.c[128]:
Writing with retransmissiontime 60...
```

delete

To delete a file from ANM Virtual Appliance, use the **delete** command in the EXEC mode.

delete disk:/[*path***/]***filename*

Syntax Description

path	(Optional) Path to file.
filename	Name of the file to delete. Enter a maximum of 80 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

If you attempt to delete the configuration file or image, the system prompts you to confirm the deletion. Also, if you attempt to delete the last valid system image, the system prompts you to confirm the deletion.

Examples

```
anm-va/admin# delete myfile
```

dir

To list files or directory contents on the ANM Virtual Appliance disk, use the **dir** command in the EXEC mode.

The user-accessible disk space on the virtual appliance is referred to as *disk:* from the CLI. You can use this disk space for temporary storage of files generated from backups or for licenses, for example. In addition to printing the directory contents, you can use the mkdir and rmdir to make and remove directories.

dir [*word*] [**recursive**]

Syntax Description

word	(Optional) Directory name. This can be a maximum of 80 alphanumeric characters. Requires **disk:/** preceding the directory name.
recursive	(Optional) Lists a local directory or filename recursively.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# dir

Directory of disk:/

      16384  Jul 02 2010 08:34:49  lost+found/
       4096  Jul 16 2010 02:10:20  mytest/
       4096  Jul 11 2010 09:12:12  save-config/

           Usage for disk: filesystem
                  49741824 bytes total used
                6815842304 bytes free
                7233003520 bytes available
```

Example 2

```
anm-va/admin# dir disk:/mytest

Directory of disk:/mytest

           Usage for disk: filesystem
                  49741824 bytes total used
                6815842304 bytes free
                7233003520 bytes available
```

Example 3

```
anm-va/admin# dir recursive

Directory of disk:/

       4096  Jul 16 2010 02:10:20  mytest/
      16384  Jul 02 2010 08:34:49  lost+found/
       4096  Jul 11 2010 09:12:12  save-config/

Directory of disk:/mytest

No files in directory

Directory of disk:/lost+found

No files in directory

Directory of disk:/save-config

        555  Jul 11 2010 09:12:12  running-config

           Usage for disk: filesystem
                  49741824 bytes total used
                6815842304 bytes free
                7233003520 bytes available
```

exit

To close an active terminal session by logging out of ANM Virtual Appliance or to move up one mode level from the Configuration mode, use the **exit** command in the EXEC mode.

exit

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Use the **exit** command in EXEC mode to exit an active session (log out of ANM Virtual Appliance) or to move up from the Configuration mode.

Examples

```
anm-va/admin(config)# exit
```

forceout

To force users out of an active terminal session by logging them out of the command line environment, use the **forceout** command in the EXEC mode.

forceout *username*

Syntax Description

username	Name of the user. Enter a maximum of 31 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Use the **forceout** command in EXEC mode to force a user from an active session.

Examples

```
anm-va/admin# forceout user1
```

halt

To shut down the system, use the **halt** command in EXEC mode. This command turns off the ANM application as well as the host operating system. It is an alternative to shutting down the virtual appliance from the vSphere Client.

halt

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Before you run the **halt** command, ensure that ANM Virtual Appliance is not performing any backup, restore, installation, upgrade, or remove operation. If you run the halt command while ANM is performing any of these operations, you will get a warning message such as the following:

```
WARNING: A backup or restore is currently in progress! Continue with halt?
```

If you get any of these warnings, enter **YES** to halt the operation, or enter **NO** to cancel the halt.

If no processes are running when you use the **halt** command or you enter **YES** in response to the warning message displayed, ANM Virtual Appliance asks you to respond to the following option:

```
Do you want to save the current configuration ?
```

Enter **YES** to save the existing configuration. The following message is displayed:

```
Saved the running configuration to startup successfully
```

Note To shut down the ANM processes only, leaving the operating system active, use the **application stop ANM** command.

Examples

```
anm-va/admin# halt
```

help

To describe the interactive help system for ANM Virtual Appliance, use the **help** command in the EXEC mode.

help

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

All configuration modes

Usage Guidelines

The **help** command provides a brief description of the context-sensitive help system. To:

- List all commands available for a particular command mode, enter a question mark (**?**) at the system prompt.
- Obtain a list of commands that begin with a particular character string, enter the abbreviated command entry immediately followed by a question mark (**?**). This form of help is called word help, because it lists only the keywords or arguments that begin with the abbreviation that you entered.
- List the keywords and arguments associated with a command, enter a question mark (**?**) in place of a keyword or argument on the command line. This form of help is called command syntax help, because it lists the keywords or arguments that apply based on the command, keywords, and arguments that you have already entered.

Examples

```
anm-va/admin# help
Help may be requested at any point in a command by entering a question mark '?'.  If
nothing matches, the help list will be empty and you must backup until entering a '?'
shows the available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a command argument (e.g. 'show ?')
and describes each possible argument.
2. Partial help is provided when an abbreviated argument is entered and you want to know
what arguments match the input (e.g. 'show pr?'.)
```

mkdir

To create a new directory on ANM Virtual Appliance, use the **mkdir** command in the EXEC mode.

mkdir disk:/*path*

Syntax Description

disk:/*path*	Name of the directory or directories to create. This can be a maximum of 80 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Use *disk:/path* with the directory name; otherwise, an error indicating that the *disk***:/***path* must be included appears. If you list multiple directories in the path, all the directories are created.

Examples

The following example shows the creation of a single directory:

```
anm-va/admin# mkdir disk:/test/
anm-va/admin# dir

Directory of disk:/

      16384  Jun 28 2007 00:09:50  lost+found/
       4096  Jun 28 2007 14:34:27  test/

           Usage for disk: filesystem
                   88150016 bytes total used
                44585803776 bytes free
                47064707072 bytes available
```

The following example shows the creation of multiple directories:

```
anm-va/admin# mkdir disk:/path/subpath/subsubpath
anm-va/admin# dir recursive

Directory of disk:/

  209931008 Aug 24 2010 23:34:43  anm-cars-appbundle-4.2.tar.gz
          0 Aug 24 2010 21:04:57  ANM20100726172319309.lic
        383 Aug 18 2010 21:31:03  ANMDEMO20100818142602125.lic
       4096 Aug 25 2010 18:16:16  path/
       4096 Aug 25 2010 18:10:10  aa/
      16384 Aug 18 2010 13:52:39  lost+found/

Directory of disk:/path

       4096 Aug 25 2010 18:16:48  subpath/

Directory of disk:/path/subpath
```

```
       4096 Aug 25 2010 18:16:48  subsubpath/

Directory of disk:/path/subpath/subsubpath

No files in directory

Directory of disk:/aa

No files in directory

Directory of disk:/lost+found

No files in directory

           Usage for disk: filesystem
                  356769792 bytes total used
                 5407555584 bytes free
                 6078058496 bytes available
```

nslookup

To look up the hostname of a remote system ANM Virtual Appliance, use the **nslookup** command in the EXEC mode.

nslookup *word*

Syntax Description

word	IPv4 address or hostname of a remote system. Enter a maximum of 64 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# nslookup 1.2.3.4
Trying "4.3.2.1.in-addr.arpa"
Host 4.3.2.1.in-addr.arpa not found: 3(NXDOMAIN) Received 105 bytes from
209.165.200.225#53 in 5 ms
```

Example 2

```
anm-va/admin# nslookup 209.165.200.225
Trying "225.200.165.209.in-addr.arpa"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 15007 ;; flags: qr aa rd ra; QUERY: 1,
ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 2

;; QUESTION SECTION:
;225.200.165.209.in-addr.arpa.      IN      PTR

;; ANSWER SECTION:
225.200.165.209.in-addr.arpa. 86400 IN      PTR     ANM.cisco.com.

;; AUTHORITY SECTION:
165.209.in-addr.arpa.    86400   IN      NS      ns2.cisco.com.
165.209.in-addr.arpa.    86400   IN      NS      ns1.cisco.com.

;; ADDITIONAL SECTION:
ns1.cisco.com.          86400   IN      A       209.165.200.225
ns2.cisco.com.          86400   IN      A       209.165.200.225

Received 146 bytes from 172.69.2.133#53 in 5 ms
```

patch install

To install a patch bundle on ANM Virtual Appliance, use the **patch install** command. A software patch provides a mechanism for modifying the ANM or ADE OS software in place, without having to redeploy the virtual machine.

With the **patch install** command, the patch file is retrieved from a remote repository. For more information on repositories, see "repository" section on page A-120

patch install *patch-bundle-filename remote-repository-name*

Syntax Description

patchfile	Name of the file that contains the software patch.
remote-repository-name	Name of the remote repository that contains the patch file.

Defaults

No default behavior or values.

Command Modes

EXEC

Examples

Example 1: Successful Patch

```
anm-va/admin# patch install TestPatch.tar.gz test-repository
Do you want to save the current configuration? (yes/no) [yes] ?
Generating configuration...
Saved the running configuration to startup successfully
Patch successfully installed
```

Example 2: Unsuccessful Patch

```
anm-va/admin# patch install TestPatch.tar.gz test-repository
Do you want to save the current configuration? (yes/no) [yes] ?
Generating configuration...
Saved the running configuration to startup successfully
% Package not installed, patching disallowed.
```

ping

To diagnose basic network connectivity to a remote system, use the **ping** command in the EXEC mode.

ping *ip-address* | *hostname* [**df** *df*] [**packetsize** *packetsize*] [**pingcount** *pingcount*]

Syntax Description

ip-address	IP address of the system to ping. Enter a maximum of 32 alphanumeric characters.
hostname	Hostname of the system to ping. Enter a maximum of 32 alphanumeric characters.
df	(Optional) Specification for packet fragmentation.
df	Enter the value as **1** to prohibit packet fragmentation, **2** to fragment the packets locally, or **3** to not set DF.
Packetsize	(Optional) Size of the ping packet.
packetsize	Specifies the size of the ping packet; the value can be between 0 and 65507.
Pingcount	(Optional) Number of ping echo requests.
pingcount	Specifies the number of ping echo requests; enter a value between 1 and 10.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

The **ping** command sends an echo request packet to an address, then awaits a reply. The ping output can help you evaluate path-to-host reliability, delays over the path, and whether you can reach a host.

Examples

```
anm-va/admin# ping 172.16.0.1 df 2 packetsize 10 pingcount 2
PING 172.16.0.1 (172.16.0.1) 10(38) bytes of data.
18 bytes from 172.16.0.1: icmp_seq=0 ttl=40 time=306 ms
18 bytes from 172.16.0.1: icmp_seq=1 ttl=40 time=300 ms

--- 172.16.0.1 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 300.302/303.557/306.812/3.255 ms, pipe 2
```

reload

To stop and restart the ANM operating system, use the **reload** command in the EXEC mode.

reload

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

The **reload** command stops and restarts the system. Before you run the **reload** command, ensure that ANM is not performing any backup, restore, installation, upgrade, or remove operation. If ANM performs any of these operations and you try to run the **reload** command, you will see any of the following warning messages:

```
WARNING: A backup or restore is currently in progress! Continue with reload?

WARNING: An install/upgrade/remove is currently in progress! Continue with reload?
```

If you get any of these warnings, enter **YES** to halt the operation, or enter **NO** to cancel the halt.

If no processes are running when you use the **reload** command or you enter **YES** in response to the warning message displayed, ANM asks you to respond to the following option:

```
Do you want to save the current configuration ?
```

Enter **YES** to save the existing ANM Virtual Appliance configuration. ANM displays the following message:

```
Saved the running configuration to startup successfully
```

Examples

```
anm-va/admin# reload
Continue with reboot? [y/n] y

Broadcast message from root (pts/0) (Tue Oct  7 23:01:46 2008):

The system is going down for reboot NOW!
```

restore

To perform a restore of a previous backup, use the **restore** command in the EXEC mode. A restore operation restores data related to ANM Virtual Appliance as well as the ADE OS.

restore *filename* **repository** *repository-name*

Syntax Description

filename	Name of the backed-up file that resides in the repository. Enter a maximum of 120 alphanumeric characters. **Note** You must add the .tar.gpg extension after the filename (for example, myfile.tar.gpg).
repository *repository-name*	Name of the repository you want to restore from backup.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

When you use this command, ANM Virtual Appliance restarts automatically.

Examples

```
anm-va/admin# restore backup1.tar.gpg repository repository1
```

rmdir

To remove an existing directory, use the **rmdir** command in the EXEC mode.

rmdir *word*

Syntax Description

word	Directory name. Enter a maximum of 80 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# mkdir disk:/test/
anm-va/admin# dir

Directory of disk:/

      16384  Jun 28 2007 00:09:50  lost+found/
       4096  Jun 28 2007 14:34:27  test/

           Usage for disk: filesystem
                  88150016 bytes total used
               44585803776 bytes free
               47064707072 bytes available CAM/admin#
anm-va/admin# rmdir disk:/test
anm-va/admin# dir

Directory of disk:/

      16384  Jun 28 2007 00:09:50  lost+found/

           Usage for disk: filesystem
                  88145920 bytes total used
               44585807872 bytes free
               47064707072 bytes available CAM/admin#
```

show

To show the running system information, use the **show** command in the EXEC mode. For detailed information on all the **show** commands, see Show Commands, page A-59.

show *keyword* [|] [>]

Syntax Description

The keyword argument represents the item to display (see Table A-3 for a summary of the **show** commands). The verticle bar (|) and angle bracket (**>**) options are command output modifiers (for details, see the "Information About Command Output Modifiers" section on page A-5).

Table A-3 Summary of Show Commands

Command	Description
application	Status or version information for the installed ANM application.
backup history	Information about the backup operations performed on this virtual appliance.
cdp	Information related to Cisco Discovery Protocol (CDP) for the appliance's interfaces or network neighbors.
clock	Day, date, time, time zone, and year of the system clock.
cpu	CPU information.
disks	File-system information of the disks.
icmp_status	ICMP echo response configuration information.
interface	Statistics for all the interfaces configured on the ADE OS.
inventory	Hardware inventory information.
ip	IP routing table information on the virtual appliance.
logging	System logging information.
logins	Login history.
memory	Memory usage by all running processes.
ntp	Status of the Network Time Protocol (NTP).
ports	Processes listening on the active ports.
process	Information about the active processes of ANM Virtual Appliance.
repository	File contents of a specific repository.
restore	Restore history on ANM Virtual Appliance.
running-config	Contents of the currently running configuration file on ANM Virtual Appliance.
startup-config	Contents of the startup configuration on ANM Virtual Appliance.
tech-support	System and configuration information that you can provide to the Cisco Technical Assistance Center (TAC) when reporting a problem.
terminal	Information about the terminal configuration parameter settings for the current terminal line.
timezone	Time zone of ANM Virtual Appliance.
timezones	Time zones available for use on ANM Virtual Appliance.
udi	Information about the system's Unique Device Identifier (UDI).

Table A-3 Summary of Show Commands

Command	Description
uptime	Length of time the system you are logged in to has been up and running.
users	Information for currently logged in users.
version	Version information for the ADE OS and ANM software.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

All **show** commands require at least one keyword to function.

Examples

```
anm-va/admin# show application
<name>          <Description>
ANM              Cisco ANM
```

ssh

To start an encrypted session with a remote system, use the **ssh** command in the EXEC mode.

Note An Admin or Operator (user) can use this command.

ssh {*ip-address* | *hostname*} *username* [**port** *number*] [**version** {**1** | **2**}]

ssh delete hostkey *word*

Syntax Description

ip-address	IP address of the remote system. Enter a maximum of 64 alphanumeric characters.
hostname	Hostname of the remote system. Enter a maximum of 64 alphanumeric characters.
username	Username of the user logging in through SSH.
port [*number*]	(Optional) Indicates the port number of the remote host. Enter a value from 0 to 65,535. Default is 22.
version {**1** | **2**}	(Optional) Indicates the version number. Default is 2.
delete hostkey	Deletes the SSH fingerprint of a specific host.
word	IPv4 address or hostname of a remote system. Enter a maximum of 64 alphanumeric characters.

Defaults

Disabled.

Command Modes

EXEC (Admin or Operator)

Usage Guidelines

The **ssh** command enables a system to make a secure, encrypted connection to another remote system or server. This connection provides functionality similar to that of an outbound Telnet connection except that the connection is encrypted. With authentication and encryption, the SSH client allows for secure communication over an insecure network.

Examples

Example 1

```
anm-va/admin# ssh delete hostkey mtm-sun8
```

Example 2

```
anm-va/admin# ssh anm2 admin
admin@anm2's password:
Last login: Wed Jul 11 05:53:20 2008 from ANM.cisco.com

anm2/admin#
```

tech dumptcp

To dump a Transmission Control Protocol (TCP) package to the console, use the **tech dumptcp** command in the EXEC mode.

tech dumptcp *gigabit-ethernet*

Syntax Description

gigabit-ethernet	Gigabit Ethernet interface number 0 or 1.

Defaults

Disabled.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# tech dumptcp 0
140816:141088(272) ack 1921 win 14144
08:26:12.034630 IP ANM.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P
141088:141248(160) ack 1921 win 14144
08:26:12.034635 IP dhcp-64-102-82-153.cisco.com.2221 > ANM.cisco.com.ssh: . ack 139632 win
64656
08:26:12.034677 IP ANM.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P
141248:141520(272) ack 1921 win 14144
08:26:12.034713 IP ANM.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P
141520:141680(160) ack 1921 win 14144
08:26:12.034754 IP ANM.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P
141680:141952(272) ack 1921 win 14144
08:26:12.034756 IP dhcp-64-102-82-153.cisco.com.2221 > ANM.cisco.com.ssh: . ack 140064 win
65520
08:26:12.034796 IP ANM.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P
141952:142112(160) ack 1921 win 14144
1000 packets captured
1000 packets received by filter
0 packets dropped by kernel
```

telnet

To log in to a host that supports Telnet, use the **telnet** command in Operator (user) or EXEC mode.

telnet {*ip-address* | *hostname*} [**port** *number*]

Syntax Description

ip-address	IP address of the remote system.
hostname	Hostname of the remote system. Enter a maximum of 64 alphanumeric characters.
port *number*	(Optional) Indicates the port number of the remote host. Enter a value from 0 to 65535.

Defaults

No default behavior or values.

Command Modes

Operator

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# telnet 172.16.0.11 port 23
ANM.cisco.com login: admin
password:
Last login: Mon Jul  2 08:45:24 on ttyS0
```

terminal length

To set the number of lines on the current terminal screen for the current session, use the **terminal length** command in the EXEC mode.

terminal length *integer*

Syntax Description

integer	Number of lines on the screen. Contains between 0 to 511 lines, inclusive. Zero (0) disables pausing between screens of output.

Defaults

24 lines

Command Modes

EXEC

Usage Guidelines

The system uses the length value to determine when to pause during multiple-screen output.

Examples

```
anm-va/admin# terminal length 0
```

terminal session-timeout

To set the inactivity timeout for all sessions, use the **terminal session-timeout** command in the EXEC mode.

terminal session-timeout *minutes*

Syntax Description

minutes	Sets the number of minutes for the inactivity timeout. Enter a value from 0 to 525,600. Zero (0) disables the timeout.

Defaults

30 minutes

Command Modes

EXEC

Usage Guidelines

Setting the **terminal session-timeout** command to zero (0) results in no timeout being set.

Examples

```
anm-va/admin# terminal session-timeout 40
```

terminal session-welcome

To set a welcome message on the system for all users who log in to the system, use the **terminal session-welcome** command in EXEC mode.

terminal session-welcome *string*

Syntax Description

string	Welcome message. Enter a maximum of 2,048 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Specify a message using up to 2,048 characters.

Examples

```
anm-va/admin# terminal session-welcome Welcome
```

terminal terminal-type

To specify the type of terminal connected to the current line for the current session, use the **terminal terminal-type** command in EXEC mode.

terminal terminal-type *type*

Syntax Description

type	Defines the terminal name and type, and permits terminal negotiation by hosts that provide that type of service. Enter a maximum of 80 alphanumeric characters.

Defaults

VT100

Command Modes

EXEC

Usage Guidelines

Indicate the terminal type if it is different from the default of VT100.

Examples

```
anm-va/admin# terminal terminal-type vt220
```

traceroute

To discover the routes that packets take when traveling to their destination address, use the **traceroute** command in EXEC mode.

traceroute {*ip-address* | *hostname*}

Syntax Description

ip-address	IP address of the remote system.
hostname	Hostname of the remote system. Enter a maximum of 32 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# traceroute 172.16.0.1
traceroute to 172.16.0.1 (172.16.0.1), 30 hops max, 38 byte packets
 1  172.16.0.1 0.067 ms  0.036 ms  0.032 ms
```

undebug

To disable debugging functions, use the **undebug** command in EXEC mode.

undebug {**all | application | backup-restore | cdp | config | copy | locks | logging | snmp | system | transfer | user | utils**} *level*

Syntax Description

all	Disables all debugging.
application	Application files: • *all*—Disables all application debug output. • *install*—Disables application install debug output. • *operation*—Disables application operation debug output. • *uninstall*—Disables application uninstall debug output.
backup-restore	Backs up and restores files: • *all*—Disables all debug output for backup-restore. • *backup*—Disables backup debug output for backup-restore. • *backup-logs*—Disables backup-logs debug output for backup-restore. • *history*—Disables history debug output for backup-restore. • *restore*—Disables restore debug output for backup-restore.
cdp	CDP configuration files: • *all*—Disables all CDP configuration debug output. • *config*—Disables configuration debug output for CDP. • *infra*—Disables infrastructure debug output for CDP.
config	Configuration files: • *all*—Disables all configuration debug output. • *backup*—Disables backup configuration debug output. • *clock*—Disables clock configuration debug output. • *infra*—Disables configuration infrastructure debug output. • *kron*—Disables command scheduler configuration debug output. • *network*—Disables network configuration debug output. • *repository*—Disables repository configuration debug output. • *service*—Disables service configuration debug output.
copy	Copy commands.
locks	Resource locking: • *all*—Disables all resource locking debug output. • *file*—Disables file locking debug output.
logging	Logging configuration files. *all*—Disables all debug output for logging configuration.

snmp	SNMP configuration files. *all*—Disables all debug output for SNMP configuration.
system	System files: • *all*—Disables all system files debug output. • *id*—Disables system ID debug output. • *info*—Disables system info debug output. • *init*—Disables system init debug output.
transfer	File transfer.
user	User management: • *all*—Disables all user management debug output. • *password-policy*—Disables user management debug output for password-policy.
utils	Utilities configuration files. *all*—Disables all utilities configuration debug output.
level	Number of the priority level at which you set the undebug output. Set level between 0 and 7 with 0 being severe and 7 being all.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# undebug all
```

write

To copy, display, or erase ANM Virtual Appliance configurations, use the **write** command with the appropriate argument in the EXEC mode.

write {**erase | memory | terminal**}

Syntax Description

erase	Erases the startup-configuration.
memory	Copies running-configuration to startup-configuration.
terminal	Copies the running-configuration to console.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# write memory
Generating configuration...
anm-va/admin#
```

Example 2

```
anm-va/admin# write terminal
Generating configuration...
!
hostname ANM
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
  ip address 209.165.200.225 255.255.255.224
!
interface GigabitEthernet 1
  shutdown
!
ip name-server 209.165.201.1
!
ip default-gateway 209.165.202.129
!
clock timezone UTC
!
username admin password hash $1$UMCQIJy1$8Z.9tkpO1QzCo4zyc1jso0 role admin
!
service sshd
!
password-policy
  lower-case-required
```

```
  upper-case-required
  digit-required
  no-username
  disable-cisco-passwords
  min-password-length 6
!
logging localhost
logging loglevel 6
!
anm-va/admin#
```

Show Commands

Each **show** command includes a brief description of its use, command syntax, usage guidelines, and sample output.

Table A-4 lists the Show commands in the EXEC mode that this section describes.

Table A-4 List of EXEC Show Commands

• show application	• show ports
• show backup history	• show process
• show cdp	• show repository
• show clock	• show restore history
• show cpu	• show running-configuration
• show disks	• show startup-configuration
• show icmp-status	• show tech-support
• show interface	• show terminal
• show inventory	• show timezone
• show ip route	• show timezones
• show logging	• show udi
• show logins cli	• show uptime
• show memory	• show users
• show ntp	• show version

Note The show commands include the vertical bar (|) and angle bracket (>) options for modifying the command output. For more information about these command modifiers, see the "Information About Command Output Modifiers" section on page A-5.

show application

To show application information of the installed application packages on the system, use the **show application** command in the EXEC mode.

show application [**status** | **version** *app_name*]

Syntax Description

status	Displays the status of the services of the ANM application.
version	Displays the ANM application version.
app_name	Name of installed application. For ANM Virtual Appliance, this value must be **ANM**.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# show application
<name>          <Description>
ANM              Cisco ANM
anm-va/admin#
```

Example 2

```
anm-va/admin# show application version ANM

4.2 (0)

anm-va/admin#
```

Example 3

```
anm-va/admin# show application status ANM

The monit daemon 4.9 uptime: 51m

Process 'dcm'                       running
Process 'dal'                       running
Process 'ip-disc'                   running
Process 'licman'                    running
Process 'anm-fw-mon'                running
Process 'mysql'                     running
System 'anm-hostname'               running

Java Processes:
licman       : Running (3487) [2010-07-27 18:34:21]
```

```
dcm           : Running (3492) [2010-07-27 18:34:21]
dal           : Running (3496) [2010-07-27 18:34:21]
ip-disc       : Running (3494) [2010-07-27 18:34:21]

Other Processes:
anm-fw-mon    : Running (3456) [2010-07-27 18:34:21]
mysql         : Running (3701) [2010-07-27 18:34:25]

anm-va/admin#
```

show backup history

To display the backup history of the system, use the **show backup history** command in the EXEC mode.

show backup history

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# show backup history
Wed Jul 18 12:55:21 UTC 2010: backup logs logs-0718.tar.gz to repository fileserver007:
success
Wed Jul 18 12:55:53 UTC 2010: backup full-0718.tar.gpg to repository fileserver007:
success
```

Example 2

```
anm-va/admin# show backup history
backup history is empty
```

show cdp

To display information about the enabled CDP interfaces, use the **show cdp** command in the EXEC mode.

show cdp {**all** | **neighbors**}

Syntax Description

all	Shows enabled CDP interfaces.
neighbors	Shows CDP neighbors.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# show cdp all

CDP protocol is enabled ...
        broadcasting interval is every 60 seconds.
        time-to-live of cdp packets is 180 seconds.

        CDP is enabled on port GigabitEthernet0.
```

Example 2

```
anm-va/admin# show cdp neighbors


CDP Neighbor : anm-test2
        Local Interface    : GigabitEthernet0
        Device Type        : cisco WS-C3560G-48PS
        Port               : GigabitEthernet0/36
        Address            : 209.165.200.225
```

show clock

To display the day, month, date, time, time zone, and year of the system software clock, use the **show clock** command in the EXEC mode.

show clock

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show clock
Tue Oct  7 20:13:22 UTC 2008
```

Note The **show clock** output in the example includes Coordinated Universal Time (UTC) or Greenwich Mean Time (GMT), Great Britain, or Zulu time (see Tables A-8, A-9, and A-10 on pages A-94 and A-95 for sample time zones).

show cpu

To display CPU information, use the **show cpu** command in the EXEC mode.

show cpu [**statistics**]

Syntax Description

statistics	(Optional) Displays CPU statistics.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# show cpu
processor : 0
model     : Intel(R) Core(TM)2 CPU          6400  @ 2.13GHz
speed(MHz): 2133.737
cache size: 2048 KB

processor : 1
model     : Intel(R) Core(TM)2 CPU          6400  @ 2.13GHz
speed(MHz): 2133.737
cache size: 2048 KB
```

Example 2

```
anm-va/admin# show cpu statistics
user time:               8312
kernel time:             3200
idle time:           15510748
i/o wait time:           5295
irq time:                 972
```

show disks

To display file-system information about the disks, use the **show disks** command in the EXEC mode.

show disks

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Only platforms that have a disk file system support the **show disks** command.

Examples

```
anm-va/admin# show disks
disk: 1% used (48564 of 7063480)
temp. space 2% used (35844 of 2031952)

Internal filesystems:
  all internal filesystems have sufficient free space
```

show icmp-status

To display file-system information about the disks, use the **show icmp-status** command in EXEC mode.

show icmp_status

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# show icmp_status
icmp echo response is turned on
```

Example 2

```
anm-va/admin# show icmp_status
icmp echo response is turned off
```

show interface

To display the usability status of interfaces configured for IP, use the **show interface** command in the EXEC mode.

show interface [**GigabitEthernet** {**0** | **1**}]

Syntax Description

GigabitEthernet	Shows the Gigabit Ethernet interface. Either 0 or 1.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show interface
ethO        Link encap:Ethernet HWaddr 00:50:56 :9D :04:07
            inet addr:10.1.41.10 Bcast: 10.1.255.255 Mask:255.255.0.0
            inet6 addr: fe80::250:56ff:fe9d:407/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
            RX packets:27151 errors:0 dropped:0 overruns:0 frame:0
            TX packets:2007 errors:0 dropped:O overruns:0 carrier:0
            collisions:O txqueuelen:1000
            RX bytes:6466949 (6.1 MiB) TX bytes:153368 (149.7 KiB)
            Interrupt:59 Base address:0x2000
lo          Link encap:Local Loopback
            inet addr:127.0.0.1 Mask:255.0.0.0
            inet6 addr: ::1/128 Scope:Host
            UP LOOPBACK RUNNING MTU:16436 Metric:1
            RX packets:12880 errors:0 dropped:0 overruns:0 frame:0
            TX packets:12880 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueue len:0
            RX bytes:2823925 (2.6 MiB) TX bytes:2823925 (2.6 MiB)
sit0        Link encap:IPv6-in-IPv4
            NOARP MTU:1480 Metric:1
            RX packets:0 errors:0 dropped:0 overruns:0 frame:0
            TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen: 0
            RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)
```

show inventory

To display information about the virtual hardware inventory, such as the memory capacity and interface information, use the **show inventory** command in the EXEC mode.

show inventory

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show inventory
NAME: "ANM-VA             chassis", DESCR: "ANM-VA             chassis"
PID: ANM-VA            , VID: V41 , SN: FFBDF3G4DON
Total RAM Memory: 2075524 kB
CPU Core Count: 1
CPU 0: Model Info: Intel(R) Xeon(R) CPU           E5504  @ 2.00GHz
Hard Disk Count(*): 1
Disk 0: Device Name: /dev/sda
Disk 0: Capacity: 134.20 GB
Disk 0: Geometry: 255 heads 63 sectors/track 16317 cylinders
NIC Count: 1
NIC 0: Device Name: eth0
NIC 0: HW Address: 00:50:56:8B:3A:53
NIC 0: Driver Descr: eth0: registered as PCnet/PCI II 79C970A

(*) Hard Disk Count may be Logical.
```

show ip route

To display the IP routing tables on ANM Virtual Appliance, use the **show ip route** command.

show ip route

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show ip route
Kernel IP routing table
Destination     Gateway         Genmask         Flags   Metric   Ref   Use Iface
10.1.0.0          0.0.0.0       255.255.0.0     U         0          0     eth0
0.0.0.0           10.1.0.1      0.0.0.0         UG        0          0     eth0
```

show logging

To display the state of system logging (syslog) and the contents of the standard system logging buffer, use the **show logging** command in the EXEC mode.

show logging {**application** [*application-name*] | **system**} [**tail** [**count** *number*]]

show logging internal

Syntax Description

application	Displays all application logs (ANM Virtual Appliance only).
application-name	(Optional) Application name. Displays specified application log (ANM Virtual Appliance only). Enter a maximum of 255 alphanumeric characters.
tail	(Optional) Tail message log.
count *number*	(Optional) Tail the specified number of messages. Enter a value from 0 to 4,294,967,295.
internal	Displays the syslogs configuration.
system	Displays the system syslogs.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

This command displays the state of syslog error and event logging, including host addresses, and for which, logging destinations (console, monitor, buffer, or host) logging is enabled.

Examples

Example 1

```
anm-va/admin# show logging system
ADEOS Platform log:
-----------------

Oct  7 13:24:41 localhost debugd[2050]: [2915]: config:network: main.c[238]: Set
up is complete
Oct  7 13:24:51 localhost debugd[2050]: hangup signal caught, configuration read
Oct  7 13:24:51 localhost debugd[2050]: successfully loaded debug config
Oct  7 13:24:51 localhost debugd[2050]: [3482]: icmp: icmputils_cli.c[139]: Generating
icmp echo response config
Oct  7 13:24:51 localhost debugd[2050]: [3482]: icmp: cars_icmpcfg.c[118]: Got the current
ICMP Echo response config as : enabled
Oct  7 13:24:51 localhost debugd[2050]: [3482]: icmp: icmputils_cli.c[160]: Got ICMP echo
config: on
Oct  7 13:24:51 localhost debugd[2050]: [3482]: icmp: icmputils_cli.c[167]: Finished icmp
echo response config generation
Oct  7 13:24:51 localhost debugd[2050]: [3482]: logging: logutils_cli.c[233]: Generating
logging config
Oct  7 13:24:51 localhost debugd[2050]: [3482]: logging: logutils_cli.c[253]: Got
Logserver: localhost
```

```
Oct  7 13:24:51 localhost debugd[2050]: [3482]: logging: logutils_cli.c[261]: Got
loglevel: 6
--More-- (press Spacebar to continue)
```

Example 2

```
anm-va/admin# show logging internal

log server:          localhost
Global loglevel:     6
Status:              Enabled
```

show logins cli

To display the status and history of system logins, use the **show logins cli** command in the EXEC mode.

show logins cli

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Requires the **cli** keyword; otherwise, an error occurs.

Examples

```
anm-va/admin# show logins cli
admin    pts/0        dhcp-64-102-82-1 Thu May  3 05:23   still logged in
admin    pts/0        dhcp-64-102-82-1 Thu May  3 04:31 - 05:11  (00:39)
admin    pts/0        dhcp-64-102-82-1 Thu May  3 04:16 - 04:17  (00:00)
admin    pts/0        dhcp-64-102-82-1 Thu May  3 03:53 - 04:16  (00:22)

wtmp begins Tue Oct  7 13:21:14 2008
```

show memory

To display the memory usage of all the running processes, use the **show memory** command in the EXEC mode.

show memory

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show memory
total memory:    2074924 kB
free memory:     1687324 kB
cached:           162984 kB
swap-cached:           0 kB
```

show ntp

To show the status of the Network Time Protocol (NTP) associations, use the **show ntp** command in the EXEC mode.

show ntp

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show ntp
Primary NTP   : 1.ntp.esl.cisco.com
Secondary NTP : 2.ntp.esl.cisco.com

synchronised to NTP server (209.165.202.129) at stratum 2
   time correct to within 37 ms
   polling server every 128 s
```

show ports

To display information about all the processes listening on active ports, use the **show ports** command in the EXEC mode.

show ports

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

When you run the **show ports** command, the port must have an associated active session.

Examples

```
anm-va/admin# show ports

Process : dbsrv10 (9253)
     tcp: 0.0.0.0:2638, :::2638
Process : portmap (2615)
     tcp: 0.0.0.0:111
     udp: 0.0.0.0:111
Process : dbsrv10 (10019)
     tcp: 0.0.0.0:43216, :::43216
Process : rt_daemon (9450)
     tcp: 172.23.245.28:49
     udp: 0.0.0.0:32771, 0.0.0.0:1812, 0.0.0.0:1813, 0.0.0.0:1645, 0.0.0.0:1646
Process : monit (6933)
     tcp: 127.0.0.1:2812
Process : java (9756)
     tcp: :::2020, ::ffff:127.0.0.1:8005, :::6666, :::2030, :::61616, :::80,
::ffff:127.0.0.1:51515, :::443
Process : sshd (2776)
     tcp: :::22
Process : java (10023)
     udp: :::20514
anm-va/admin#
```

show process

To display information about active processes, use the **show process** command in the EXEC mode.

show process

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Table A-5 describes the process fields that display in the command output.

Table A-5 Show Process Field Descriptions

Field	Description
USER	Logged-in user.
PID	Process ID.
TIME	The time the command was last used.
TT	Terminal that controls the process.
COMMAND	Type of process or command used.

Examples

```
anm-va/admin# show process

USER       PID     TIME TT       COMMAND
root         1 00:00:00 ?        init
root         2 00:00:00 ?        migration/0
root         3 00:00:00 ?        ksoftirqd/0
root         4 00:00:00 ?        migration/1
root         5 00:00:00 ?        ksoftirqd/1
root         6 00:00:00 ?        events/0
root         7 00:00:00 ?        events/1
root         8 00:00:00 ?        khelper
root         9 00:00:00 ?        kacpid
root        36 00:00:00 ?        kblockd/0
root        37 00:00:00 ?        kblockd/1
root        55 00:00:00 ?        pdflush
root        58 00:00:00 ?        aio/0
root        59 00:00:00 ?        aio/1
root        38 00:00:00 ?        khubd
root        57 00:00:00 ?        kswapd0
root       203 00:00:00 ?        kseriod
root       320 00:00:00 ?        ata/0
root       321 00:00:00 ?        ata/1
--More-- (press Spacebar to continue)
```

show repository

To display the file contents of the repository, use the **show repository** command in the EXEC mode.

show repository *repository-name*

Syntax Description

repository-name	Name of the repository whose contents you want to view. Enter a maximum of 30 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show repository myrepository
back1.tar.gpg
back2.tar.gpg
anm-va/admin#
```

show restore history

To display the restore history, use the **show restore history** command in the EXEC mode.

show restore history

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

Example 1

```
anm-va/admin# show restore history
Tue Sep  4 03:42:48 PDT 2008: restore 11backup_Local.File2.tar.gpg from repository
executeBackupRepo: success Tue Sep  4 03:46:15 PDT 2008: restore
11backup_Local.File2.tar.gpg from repository executeBackupRepo: success Tue Sep  4
03:51:07 PDT 2008: restore 11backup_Local.File2.tar.gpg from repository executeBackupRepo:
success Tue Sep  4 03:54:35 PDT 2008: restore 11backup_Local.File2.tar.gpg from repository
executeBackupRepo: success Wed Sep  5 12:31:21 UTC 2008: restore cdromRestore.tar.gpg from
repository cdrom1: success admin#
```

Example 2

```
anm-va/admin# show restore history
restore history is empty
```

show running-configuration

To display the contents of the currently running configuration file or the configuration, use the **show running-configuration** command in the EXEC mode.

show running-configuration

Syntax Description

No arguments or keywords.

Defaults

The **show running-configuration** command displays all of the configuration information.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show running-configuration

Generating configuration...
!
hostname anm-va
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
  ip address 10.1.41.10 255.255.0.0
!
ip name-server 10.1.0.2 10.1.1.10
!
ip default-gateway 10.1.0.1
!
clock timezone UTC
!
ntp server time.nist.gov
!
username admin password hash $1$YAjhzmfS$uNRmh.DxzEuGnQn.role admin
!
service sshd
!
repository myrepository
  url ftp://209.165.200.234/backup
  user repuser password secret
!
password-policy
  lower-case-required
  upper-case-required
  digit-required
  no-username
  disable-cisco-passwords
  min-password-length 6
!
logging localhost
```

```
logging loglevel 6
!
cdp timer 60
cdp holdtime 180
cdp run GigabitEthernet 0
!
icmp echo on
!
```

show startup-configuration

To display the contents of the startup configuration file or the configuration, use the **show startup-configuration** command in the EXEC mode.

show startup-configuration

Syntax Description

No arguments or keywords.

Defaults

The **show startup-configuration** command displays all of the startup configuration information.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show startup-configuration

Generating configuration...
!
hostname anm-va
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
  ip address 209.165.200.225 255.255.255.224
!
ip name-server 10.1.0.2 10.1.1.10
!
ip default-gateway 10.1.0.1
!
clock timezone UTC
!
!
username admin password hash $1$YAjhzmfS$uNRmh.DxzEuGnQn.role admin
!
service sshd
!
repository myrepository
  url ftp://209.165.200.234/backup
  user repuser password secret
!
--More-- (press Spacebar to continue)
```

show tech-support

To display technical support information, including e-mail, use the **show tech-support** command in the EXEC mode.

show tech-support [**file** *word*]

Syntax Description

file	(Optional) Save any technical support data as a file in the local disk, which is disk: (do not include **disk:** in the command).
word	Filename to save. Enter a maximum of 80 alphanumeric characters.

Defaults

Passwords and other security information do not appear in the output.

Command Modes

EXEC

Usage Guidelines

The **show tech-support** command is useful for collecting a large amount of information about your ANM Virtual Appliance for troubleshooting purposes. You can then provide output to technical support representatives when reporting a problem.

Examples

```
anm-va/admin# show tech-support
################################################
Application Deployment Engine(ADE) - Release 1.0
Technical Support Debug Info follows...
################################################


**************************************
Checking dmidecode Serial Number(s)
**************************************
  0x0736C7F6
 0x0736C803
 0x0736C808
 0x0736C81F
 AZAX74601334

**************************************
Displaying System Uptime...
**************************************
 20:41:46 up  6:42,  1 user,  load average: 0.45, 0.20, 0.12

**************************************
Display Memory Usage(KB)
**************************************
             total       used       free     shared    buffers     cached
Mem:       4148032    2951612    1196420          0      59440    1873920
-/+ buffers/cache:    1018252    3129780
Swap:      8191992          0    8191992

**************************************
Displaying Processes(ax --forest)...
```

```
****************************************
  PID TTY      STAT   TIME COMMAND
    1 ?        S      0:00 init [3]
    2 ?        S      0:00 [migration/0]
    3 ?        SN     0:00 [ksoftirqd/0]
    4 ?        S      0:00 [migration/1]
    5 ?        SN     0:00 [ksoftirqd/1]

--More--(Press Enter or Spacebar.)
```

show terminal

To obtain information about the terminal configuration parameter settings, use the **show terminal** command in the EXEC mode.

show terminal

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

Table A-6 describes the fields of the **show terminal** output.

Table A-6 Show Terminal Field Descriptions

Field	Description
TTY: /dev/pts/0	Displays standard output to type of terminal.
Type: “vt100“	Type of current terminal used.
Length: 24 lines	Length of the terminal display.
Width: 80 columns	Width of the terminal display, in character columns.
Session Timeout: 30 minutes	Length of time, in minutes, for a session, after which the connection closes.

Examples

```
anm-va/admin# show terminal
TTY: /dev/pts/0 Type: "vt100"
Length: 25 lines, Width: 80 columns
Session Timeout: 30 minutes
anm-va/admin#
```

show timezone

To display the time zone as set on the system, use the **show timezone** command in the EXEC mode.

show timezone

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show timezone
UTC
```

show timezones

To obtain a list of time zones from which you can select, use the **show timezones** command in the EXEC mode.

show timezones

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

See clock timezone, page A-98, for examples of the time zones available for ANM Virtual Appliance.

Examples

```
anm-va/admin# show timezones
PST8PDT
Hongkong
Etc/GMT-7
Etc/GMT-12
Etc/GMT-4
Etc/GMT-13
Etc/GMT-11
Etc/GMT-1
Etc/GMT+5
Etc/GMT-14
Etc/GMT+11
Etc/GMT+6
Etc/Zulu
Etc/GMT+7
Etc/Universal
Etc/GMT-2
Etc/GMT+10
Etc/GMT-8
Etc/GMT+8
Etc/GMT+1
Etc/GMT0
Etc/GMT+9
Etc/GMT+3
Etc/GMT-3
Etc/GMT
Etc/GMT-5
Etc/GMT-0
Etc/GMT-6
Etc/GMT+4
Etc/GMT-9
Etc/GMT+12
Etc/GMT+2
Etc/UCT
--More-- (Press Enter or Spacebar)
```

show udi

To display UDI information for ANM Virtual Appliance, use the **show udi** command in the EXEC mode. This command returns information on the Serial Product ID (SPID), Version ID (VPID), and the appliance serial number. The actualUDI value is made up of the SPID and the serial number of the appliance, such as `Cisco-VM-SPIDG7123455`.

show udi

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show udi
SPID: ANM-VA
VPID: V41
Serial: FFBDF3G4DON
```

show uptime

To display the length of time that you have been logged in to ANM Virtual Appliance, use the **show uptime** command in the EXEC mode.

show uptime

Syntax Description No keywords or arguments.

Defaults No default behavior or values.

Command Modes EXEC

Usage Guidelines None.

Examples

```
anm-va/admin# show uptime
4 day(s), 16:36:58
```

show users

To display the list of users logged in to ANM Virtual Appliance, use the **show users** command in the EXEC mode.

show users

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

None.

Examples

```
anm-va/admin# show users
USERNAME         ROLE   HOST                     TTY      LOGIN DATETIME
admin            Admin  209.165.200.225            pts/0    Tue Oct  7 19:21:00 2008
```

show version

To display information about the software version of the system, use the **show version** command in the EXEC mode.

show version

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

EXEC

Usage Guidelines

This command displays information about the ADE OS software version running on ANM Virtual Appliance and the ANM version.

Examples

```
anm-va/admin# show version

Cisco Application Deployment Engine OS Release: 2.0
ADE-OS Build Version: 2.0.0.448
ADE-OS System Architecture i386

Copyright (c) 2005-2011 by Cisco Systems, Inc.
All rights reserved.
Hostname: anm-va

Version information of installed applications
---------------------------------------------

4.2 (0)
```

Configuration Commands

Each configuration command includes a brief description of its use, command syntax, usage guidelines, and sample output.

Configuration commands include **interface** and **repository**.

Note Some of the Configuration commands require you to enter the configuration submode to complete the command configuration.

To access the Configuration mode, you must use the **configure** command in the EXEC mode.

Table A-7 lists the Configuration commands that this section describes.

Table A-7 List of Configuration Commands

• aaa authentication tacacs+	• ip domain-name
• backup-staging-url	• ip name-server
• cdp holdtime	• kron occurrence
• cdp run	• kron policy-list
• cdp timer	• logging
• clock timezone	• ntp server
• do	• password-policy
• end	• repository
• exit	• service sshd
• hostname	• snmp-server community
• icmp echo	• snmp-server contact
• interface GigabitEthernet	• snmp-server host
• ip address	• snmp-server location
• ip default-gateway	• username

aaa authentication tacacs+

To specify remote authentication for console users, use the **aaa authentication tacacs+** command. TACACS+ is a TCP-based protocol for remote authentication. You can use this command to direct ANM Virtual Appliance to use a remote server to authenticate console users.

aaa authentication tacacs+ server *servername* **key** *sharedkey*

Syntax Description

server *servername*	The hostname or IP address of the remote TACACS+ authentication server.
key *sharedkey*	The security key that matches the security key on the remote server.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

```
anm-va/admin(config)# aaa authentication tacacs+ server 10.1.0.31 key secret1234
```

backup-staging-url

To allow you to configure a Network File System (NFS) location that backup and restore operations will use as a staging area to package and unpackage backup files, use the **backup-staging-url** command in Configuration mode.

backup-staging-url *word*

Syntax Description

word	NFS URL for staging area. Enter a maximum of 2048 alphanumeric characters. Use **nfs://***server***:***path*[1].

1. Server is the server name and path refers to /subdir/subsubdir. Remember that a colon (:) is required after the server.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

The URL is NFS only. The format of the command is **backup-staging-url nfs://***server***:***path*.

Warning **Ensure that you secure your NFS server in such a way that the directory can be accessed only by the IP address of ANM Virtual Appliance.**

Examples

```
anm-va/admin(config)# backup-staging-url nfs://loc-filer02a:/vol/local1/private1/jdoe
```

cdp holdtime

To specify the amount of time for which the receiving device should hold a CDP packet from ANM Virtual Appliance before discarding it, use the **cdp holdtime** command in the Configuration mode. To revert to the default setting, use the **no** form of this command.

cdp holdtime *seconds*

Syntax Description

seconds	Specifies the hold time in seconds. Enter a value from 10 to 255 seconds.

Defaults

180 seconds

Command Modes

Configuration

Usage Guidelines

CDP packets transmit with a time to live, or hold time, value. The receiving device will discard the CDP information in the CDP packet after the hold time has elapsed.

The **cdp holdtime** command takes only one argument; otherwise, an error occurs.

Examples

```
anm-va/admin(config)# cdp holdtime 60
```

cdp run

To enable Cisco Discovery Protocol (CDP) operation, use the **cdp run** command in Configuration mode. To disable CDP, use the **no** form of this command.

cdp run [**GigabitEthernet**]

Syntax Description

GigabitEthernet	(Optional) Specifies the GigabitEthernet interface on which to enable CDP.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

The command has one optional argument, an interface name. Without an optional interface name, the command enables CDP on all interfaces.

Note The default for this command is on interfaces that are already up and running. When you are bringing up an interface, stop CDP first; then, start CDP again.

Examples

```
anm-va/admin(config)# cdp run GigabitEthernet 0
```

cdp timer

To specify how often ANM Virtual Appliance sends Cisco Discovery Protocol (CDP) updates, use the **cdp timer** command in Configuration mode. To revert to the default setting, use the **no** form of this command.

cdp timer *seconds*

Syntax Description

seconds	Specifies how often, in seconds, that ANM Virtual Appliance sends CDP updates. Enter a value from 5 to 254 seconds.

Defaults

60 seconds

Command Modes

Configuration

Usage Guidelines

CDP packets transmit with a time to live, or hold time, value. The receiving device will discard the CDP information in the CDP packet after the hold time has elapsed.

The **cdp timer** command takes only one argument; otherwise, an error occurs.

Examples

```
anm-va/admin(config)# cdp timer 60
```

clock timezone

To set the time zone, use the **clock timezone** command in Configuration mode. To disable this function, use the **no** form of this command.

clock timezone *timezone*

Syntax Description

timezone	Name of the time zone visible when in standard time. This can be a maximum of 64 alphanumeric characters.

Defaults

UTC

Command Modes

Configuration

Usage Guidelines

The system internally keeps time in UTC. If you do not know your specific time zone, you can enter the region, country, and city (see Tables A-8, A-9, and A-10 for sample time zones to enter on your system).

Table A-8 Common Time Zones

Acronym or name	Time Zone Name
Europe	
GMT, GMT0, GMT-0, GMT+0, UTC, Greenwich, Universal, Zulu	Greenwich Mean Time, as UTC
GB	British
GB-Eire, Eire	Irish
WET	Western Europe Time, as UTC
CET	Central Europe Time, as UTC + 1 hour
EET	Eastern Europe Time, as UTC + 2 hours
United States and Canada	
EST, EST5EDT	Eastern Standard Time, as UTC -5 hours
CST, CST6CDT	Central Standard Time, as UTC -6 hours
MST, MST7MDT	Mountain Standard Time, as UTC -7 hours
PST, PST8PDT	Pacific Standard Time, as UTC -8 hours
HST	Hawaiian Standard Time, as UTC -10 hours

Table A-9 Australia Time Zones

Australia[1]			
ACT[2]	Adelaide	Brisbane	Broken_Hill
Canberra	Currie	Darwin	Hobart
Lord_Howe	Lindeman	LHI[3]	Melbourne
North	NSW[4]	Perth	Queensland
South	Sydney	Tasmania	Victoria
West	Yancowinna		

1. Enter the country and city together with a forward slash (/) between them; for example, Australia/Currie.
2. ACT = Australian Capital Territory.
3. LHI = Lord Howe Island
4. NSW = New South Wales

Table A-10 Asia Time Zones

Asia[1]			
Aden[2]	Almaty	Amman	Anadyr
Aqtau	Aqtobe	Ashgabat	Ashkhabad
Baghdad	Bahrain	Baku	Bangkok
Beirut	Bishkek	Brunei	Calcutta
Choibalsan	Chongqing	Columbo	Damascus
Dhakar	Dili	Dubai	Dushanbe
Gaza	Harbin	Hong_Kong	Hovd
Irkutsk	Istanbul	Jakarta	Jayapura
Jerusalem	Kabul	Kamchatka	Karachi
Kashgar	Katmandu	Kuala_Lumpur	Kuching
Kuwait	Krasnoyarsk		

1. The Asia time zone includes cities from East Asia, Southern Southeast Asia, West Asia, and Central Asia.
2. Enter the region and city or country together separated by a forward slash (/); for example, Asia/Aden.

Note Several more time zones are available to you. On your ANM Virtual Appliance, enter **show timezones**. A list of all the time zones available in ANM Virtual Appliance appears. Choose the most appropriate one for your time zone.

Examples

```
anm-va/admin(config)# clock timezone EST
anm-va/admin(config)# exit
anm-va/admin# show timezone
EST
```

do

To execute an EXEC-level command from Configuration mode or any configuration submode, use the **do** command in any configuration mode.

do *arguments*

Syntax Description

arguments	The EXEC command to execute (see Table A-11).

Table A-11 Command Options for Do Command

Command	Description
anm-certificate install	Installs a security certificate for the ANM web application.
anm-data-export audit	Generates an archive containing audit-related log information.
anm-data-export history	Generates an archive containing audit-related log information.
anm-license install	Installs a license for the ANM web application.
anm-tool configure	Initiates the web application configuration sequence for the ANM application.
anm-tool restart	Restarts the ANM application processes.
application install	Installs a specific application. Not used with ANM Virtual Appliance.
application remove	Removes a specific application. Not used with ANM Virtual Appliance.
application start	Starts the ANM application.
application stop	Stops the ANM application.
application upgrade	Upgrades a specific application.
backup	Performs a backup of the ADE OS files and places the backup in a repository.
backup-logs	Performs a backup of all the logs on ANM Virtual Appliance to a remote location. Backs up the ANM-specific logs, such as audit and device-related activity logs, as well as the ADE OS logs.
clock	Sets the system clock on ANM Virtual Appliance.
configure	Enters Configuration mode.
copy	Copies any file from a source to a destination.
debug	Displays any errors or events for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
delete	Deletes a file on ANM Virtual Appliance.
dir	Lists files on ANM Virtual Appliance.
forceout	Forces the logout of all the sessions of a specific ANM Virtual Appliance user.
halt	Disables or shuts down ANM Virtual Appliance.
help	Describes the help utility and how to use it on ANM Virtual Appliance.

Table A-11 Command Options for Do Command (continued)

Command	Description
mkdir	Creates a new directory.
nslookup	Queries the IPv4 address or hostname of a remote system.
patch install	Applies a software patch to the system.
ping	Determines the network activity on a remote system.
reload	Reboots ANM Virtual Appliance.
restore	Performs a restore and retrieves the backup out of a repository.
rmdir	Removes an existing directory.
show	Provides information about ANM Virtual Appliance.
ssh	Starts an encrypted session with a remote system.
tech	Provides Technical Assistance Center (TAC) commands.
telnet	Telnets to a remote system.
terminal length	Sets terminal line parameters.
terminal session-timeout	Sets the inactivity timeout for all terminal sessions.
terminal session-welcome	Sets the welcome message on the system for all terminal sessions.
terminal terminal-type	Specifies the type of terminal connected to the current line of the current session.
traceroute	Traces the route of a remote IP address.
undebug	Disables the output (display of errors or events) of the **debug** command for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
write	Copies, displays, or erases the running ANM Virtual Appliance information.

Command Default

No default behavior or values.

Command Modes

Configuration or any configuration submode

Usage Guidelines

Use this command to execute EXEC commands (such as **show**, **clear**, and **debug** commands) while configuring ANM. After the EXEC command executes, the system will return to the configuration mode you were using.

Examples

```
anm-va/admin(config)# do show run
Generating configuration...
!
hostname ems-lnx106
ip domain-name cisco.com
interface ethernet 0
  ip address 209.165.200.225 255.255.255.224
```

```
interface ethernet 1
  shutdown
ip name-server 209.165.201.1
ip default-gateway 209.165.202.129
clock timezone Cuba
!
!
username admin password hash $1$hB$MxIZHvecMiey/P9mM9PvN0 role admin
!
!
logging localhost
logging loglevel 6
!
```

end

To end the current configuration session and return to the EXEC mode, use the **end** command in Configuration mode.

end

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

This command brings you back to EXEC mode regardless of what configuration mode or submode you are in.

Use this command when you finish configuring the system and you want to return to EXEC mode to perform verification steps.

Examples

```
anm-va/admin(config)# end
```

exit

To exit any configuration mode to the next-highest mode in the CLI mode hierarchy, use the **exit** command in Configuration mode.

exit

Syntax Description

No arguments or keywords.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

The **exit** command is used in ANM Virtual Appliance to exit the current command mode to the next highest command mode in the CLI mode hierarchy.

For example, use the **exit** command in Configuration mode to return to the EXEC mode. Use the **exit** command in the configuration submodes to return to Configuration mode. At the highest level, EXEC mode, the **exit** command exits the EXEC mode and disconnects from ANM Virtual Appliance (see exit, page A-33, for a description of the **exit** (EXEC) command).

Examples

```
anm-va/admin(config)# exit
```

hostname

To set the hostname of the system, use the **hostname** command in Configuration mode. To delete the hostname from the system, use the **no** form of this command. This resets the system to localhost.

hostname *word*

Syntax Description

word	Name of the host. Enter 2 to 19 alphanumeric characters; dashes (-) are allowed. Spaces are not allowed.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

A single instance type of command, **hostname** only occurs once in the configuration of the system. The hostname must contain one argument; otherwise, an error occurs.

Examples

```
anm-va/admin(config)# hostname myserver-1
Changing the hostname or IP may result in undesired side effects,
such as installed application(s) being restarted.
Are you sure you want to proceed? [y/n] y
```

icmp echo

To configure the Internet Control Message Protocol (ICMP) echo responses, use the **icmp echo** command in Configuration mode.

icmp echo {**off** | **on**}

Syntax Description

off	Disables ICMP echo response
on	Enables ICMP echo response.

Defaults

The system will behave as if the ICMP echo response is on (enabled).

Command Modes

Configuration

Usage Guidelines

None.

Examples

```
anm-va/admin(config)# icmp echo off
```

interface GigabitEthernet

To configure an interface type and enter the interface configuration mode, use the **interface GigabitEthernet** command in Configuration mode. This command does not have a **no** form.

interface GigabitEthernet {**0** | **1** | **2** | **3**}

Syntax Description

0 | **1** | **2** | **3**	Number of the Gigabit Ethernet port to configure.

Note After you enter the Gigabit Ethernet port number in the **interface GigabitEthernet** command, you enter the config-GigabitEthernet configuration submode (see the following Syntax Description).

do	EXEC command. Allows you to perform any EXEC commands in this mode (see do, page A-100).
end	Exits the config-GigabitEthernet submode and returns you to the EXEC mode.
exit	Exits the config-GigabitEthernet configuration submode.
ip	Sets the IP address and netmask for the Ethernet interface (see ip address, page A-108).
no	Negates the command in this mode. Two keywords available: • ip—Sets the IP address and netmask for the interface. • shutdown—Shuts down the interface.
shutdown	Shuts down the interface.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

You can use this command to configure subinterfaces to support various requirements.

Examples

```
anm-va/admin(config)# interface GigabitEthernet 0
anm-va/admin(config-GigabitEthernet)#
```

ip address

To set the IP address and netmask for the Ethernet interface, use the **ip address** command in interface Configuration mode. To remove an IP address or disable IP processing, use the **no** form of this command.

ip address *ip-address netmask*

Note You can configure the same IP address on multiple interfaces. You might want to do this to limit the configuration steps required to switch from using one interface to another.

Syntax Description

ip-address	IPv4 version IP address.
netmask	Mask of the associated IP subnet.

Defaults

Enabled.

Command Modes

Interface configuration

Usage Guidelines

Requires exactly one address and one netmask; otherwise, an error occurs.

Examples

```
anm-va/admin(config)# interface GigabitEthernet 0
anm-va/admin(config-GigabitEthernet)# ip address 209.165.200.227 255.255.255.224
IP Address was modified.
ANM is restarting and a new HTTP certificate will be generated.
Stopping ANM ......................
Starting ANM ....

To verify that ANM processes are running, use the
'show application status ANM' command.
```

ip default-gateway

To define or set a default gateway with an IP address, use the **ip default-gateway** command in Configuration mode. To disable this function, use the **no** form of this command.

ip default-gateway *ip-address*

Syntax Description

ip-address	IP address of the default gateway.

Defaults

Disabled.

Command Modes

Configuration

Usage Guidelines

If you enter more than one argument or no arguments at all, an error occurs.

Examples

```
anm-va/admin(config)# ip default-gateway 209.165.202.129
```

ip domain-name

To define a default domain name that ANM Virtual Appliance uses to complete hostnames, use the **ip domain-name** command in Configuration mode. To disable this function, use the **no** form of this command.

ip domain-name *word*

Syntax Description

word	Default domain name used to complete the hostnames. Enter 2 to 64 alphanumeric characters.

Defaults

Enabled.

Command Modes

Configuration

Usage Guidelines

If you enter more or fewer arguments, an error occurs.

Examples

```
anm-va/admin(config)# ip domain-name cisco.com
```

ip name-server

To set the Domain Name Server (DNS) servers for use during a DNS query, use the **ip name-server** command in Configuration mode. You can configure one to three DNS servers. To disable this function, use the **no** form of this command.

Note Using the **no** form of this command removes all the name servers from the configuration. Using the **no** form of this command and one of the IP names removes only that IP name.

ip name-server *ip-address* [*ip-address**]

Syntax Description

ip-address	Address of a name server.
*ip-address**	(Optional) IP addresses of additional name servers. **Note** You can configure a maximum of three name servers.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

The first name server added with the **ip name-server** command will occupy the first position and the system will first use that server in resolving the IP addresses.

You can add name servers to the system one at a time or all at once, until you reach the maximum (3). If you already configured the system with three name servers, you must remove at least one server to add additional name servers.

To place a name server in the first position so that the subsystem uses it first, you must remove all name servers with the **no** form of this command before you proceed.

Note When you enter the **ip name-server** command, a message appears that asks if you want to restart ANM now. The DNS changes still take effect even if you choose not choose not to restart ANM.

Examples

```
anm-va/admin(config)# ip name-server 209.165.201.1
Name Server was modified. You must restart ANM.
Do you want to restart ANM now? (yes/no) yes
Stopping ANM .....................
Starting ANM ....

To verify that ANM processes are running, use the
'show application status ANM' command.
anm-va/admin(config)#
```

ip route

To configure static routes, use the **ip route** command in Configuration mode. To remove static routes, use the **no** form of this command.

Static routes are manually configured. This makes them inflexible (they cannot dynamically adapt to network topology changes) but extremely stable. Static routes optimize bandwidth utilization, because no routing updates need to be sent to maintain them. They also make it easy to enforce routing policy.

ip route *prefix mask* **gateway** *ip-address*

no ip route *prefix mask*

Syntax Description

prefix	IP route prefix for the destination.
mask	Prefix mask for the destination.
gateway *ip-address*	IP address of the next hop that can be used to reach that network.

Defaults

No default behavior or values.

Command Modes

Configuration.

Examples

```
anm-va/admin(config)# ip route 192.168.0.0 255.255.0.0 gateway 172.23.90.2
```

kron occurrence

To schedule one or more Command Scheduler commands to run at a specific date and time or a recurring level, use the **kron occurrence** command in Configuration mode. To delete this, use the **no** form of this command.

kron occurrence *occurrence-name*

Syntax Description

occurrence-name	Name of the occurrence. Enter a maximum of 80 alphanumeric characters.

Note After you enter the *occurrence-name* in the **kron occurrence** command, you enter the config-occurrence configuration submode (see the following syntax description).

at	Identifies that the occurrence is to run at a specified calendar date and time. Usage: at [*hh:mm*] [*day-of-week* | *day-of-month* | *month day-of-month*].
do	EXEC command. Allows you to perform any EXEC commands in this mode (see do, page A-100).
end	Exits the kron-occurrence configuration submode and returns you to the EXEC mode.
exit	Exits the kron-occurrence configuration mode.
no	Negates the command in this mode. Three keywords available: • at—Usage: at [*hh:mm*] [*day-of-week* | *day-of-month* | *month day-of-month*]. • policy-list—Specifies a policy list to be run by the occurrence. This can be a maximum of 80 alphanumeric characters. • recurring—Execution of the policy lists should be repeated.
policy-list	Specifies a Command Scheduler policy list to be run by the occurrence.
recurring	Identifies that the occurrences run on a recurring basis.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

Use the **kron occurrence** and **policy-list** commands to schedule one or more policy lists to run at the same time or interval.

Use the **kron policy-list** command in conjunction with the **cli** command to create a Command Scheduler policy containing EXEC CLI commands to be scheduled to run on ANM Virtual Appliance at a specified time. See kron policy-list, page A-115.

Note When you run the **kron** command, backup bundles are created with a unique name (by adding a time stamp), to ensure that the files do not overwrite each other.

Examples

Example 1: Weekly Backup

```
anm-va/admin(config)# kron occurrence WeeklyBackup
anm-va/admin(config-Occurrence)# at 14:35 Monday
anm-va/admin(config-Occurrence)# policy-list SchedBackupPolicy
anm-va/admin(config-Occurrence)# recurring
anm-va/admin(config-Occurrence)# exit
anm-va/admin(config)#
```

Example 2: Daily Backup

```
anm-va/admin(config)# kron occurrence DailyBackup
anm-va/admin(config-Occurrence)# at 02:00
anm-va/admin(config-Occurrence)# exit
anm-va/admin(config)#
```

kron policy-list

To specify a name for a Command Scheduler policy and enter the kron-Policy List configuration submode, use the **kron policy-list** command in Configuration mode. To delete this, use the **no** form of this command.

kron policy-list *list-name*

Syntax Description

list-name	Name of the policy list. Enter a maximum of 80 alphanumeric characters.

Note After you enter the *list-name* in the **kron policy-list** command, you enter the config-Policy List configuration submode (see the following syntax description).

cli	Command to be executed by the scheduler. This can be a maximum of 80 alphanumeric characters.
do	EXEC command. Allows you to perform any EXEC commands in this mode (see do, page A-100).
end	Exits from the config-Policy List configuration submode and returns you to the EXEC mode.
exit	Exits this submode.
no	Negates the command in this mode. One keyword available: • cli–Command to be executed by the scheduler.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

Use the **kron policy-list** command in conjunction with the **cli** command to create a Command Scheduler policy containing EXEC CLI commands to be scheduled to run on ANM Virtual Appliance at a specified time. Use the **kron occurrence** and **policy list** commands to schedule one or more policy lists to run at the same time or interval. See kron occurrence, page A-113.

Examples

```
anm-va/admin(config)# kron policy-list SchedBackupMonday
anm-va/admin(config-Policy List)# cli backup SchedBackupMonday repository SchedBackupRepo
anm-va/admin(config-Policy List)# exit
anm-va/admin(config)#
```

logging

To enable the system to forward logs to a remote system or to configure the log level, use the **logging** command in Configuration mode. To disable this function, use the **no** form of this command.

logging {*ip-address* | *hostname*} {**loglevel** *level*}

Syntax Description

ip-address	IP address of remote system to which you forward logs. .
hostname	Hostname of remote system to which you forward logs. Enter a maximum of 32 alphanumeric characters.
loglevel	Configures the log level for the **logging** command.
level	Number of the desired priority level at which you set the log messages. Priority levels are (enter the number for the keyword): • 0-emerg—Emergencies: System unusable. • 1-alert—Alerts: Immediate action needed. • 2-crit—Critical: Critical conditions. • 3-err—Error: Error conditions. • 4-warn—Warning: Warning conditions. • 5-notif—Notifications: Normal but significant conditions. • 6-inform—Informational messages. Default. • 7-debug—Debugging messages.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

This command requires an IP address or hostname or the **loglevel** keyword; an error occurs if you enter two or more of these arguments.

Examples

Example 1

```
anm-va/admin(config)# logging 209.165.200.225
```

Example 2

```
anm-va/admin(config)# logging loglevel 0
```

ntp server

To allow for software clock synchronization by the Network Time Protocol (NTP) server for the system, use the **ntp server** command in Configuration mode. Allows up to two servers. To disable this capability, use the **no** form of this command.

ntp server {*ip-address* | *hostname*} [*ip-address* | *hostname*]

Syntax Description

ip-address | *hostname*	(Optional) IP address or hostname of the server providing the clock synchronization. You can specify multiple IP addresses or hostnames. Arguments are limited to 255 alphanumeric characters.

Defaults

No servers are configured by default.

Command Modes

Configuration

Usage Guidelines

Use this command if you want to allow the system to synchronize with a specified server.

To terminate NTP service on a device, you must enter the **no ntp** command without keywords or arguments.

For example, if you previously ran the **ntp server** command and you now want to remove not only the server synchronization capability, but all NTP functions from the device, use the **no ntp** command without any keywords. This ensures that all NTP functions disable and that the NTP service also terminates.

Note This command may display conflicting information during the sync process. The sync process can take up to 20 minutes to complete.

Examples

```
anm-va/admin(config)# ntp server 209.165.201.31
NTP Server was modified. You must restart ANM.
Do you want to restart ANM now? (yes/no) yes
Stopping ANM ......................
Starting ANM ......................

To verify that ANM processes are running, use the
'show application status ANM' command.
```

password-policy

To enable or configure the passwords on the system, use the **password-policy** command in Configuration mode. To disable this function, use the **no** form of this command.

password-policy *option*

Note The **password-policy** command requires a policy option (see the syntax description).

You must enter the **password-expiration-enabled** command before the other password-expiration commands.

Syntax Description

Note After you enter the **password-policy** command, you enter the config-password-policy configuration submode.

digit-required	Requires a digit in the password.
disable-repeat-characters	Disables the password's ability to contain more than four identical characters.
disable-cisco-password	Disables the ability to use the word Cisco or any combination as the password.
lower-case-required	Requires a lowercase letter in the password.
min-password-length	Specifies a minimum number of characters for a valid password. Integer length from 0 to 4,294,967,295.
no-previous-password	Prevents users from reusing a part of their previous password.
no-username	Prohibits users from reusing their username as a part of a password.
password-expiration-days	Number of days until a password expires. Integer length from 0 to 80.
password-expiration-enabled	Enables password expiration. **Note** You must enter the **password-expiration-enabled** command before the other password-expiration commands.
password-expiration-warning	Number of days before expiration that warnings of impending expiration begin. Integer length from 0 to 4,294,967,295.
password-lock-enabled	Locks a password after several failures.
password-lock-retry-count	Number of failed attempts before password locks. Integer length from 0 to 4,294,967,295.
upper-case-required	Requires an uppercase letter in the password.
special-required	Requires a special character in the password.

Defaults

No default behavior or values.

Command Modes Configuration

Usage Guidelines None.

Examples

```
anm-va/admin(config)# password-policy
anm-va/admin(config-password-policy)# password-expiration-days 30
anm-va/admin(config-password-policy)# exit
anm-va/admin(config)#
```

repository

To enter the repository submode for configuration of backups, use the **repository** command in Configuration mode.

repository *repository-name*

Syntax Description

repository-name	Name of repository. Enter a maximum of 80 alphanumeric characters.

Note After you enter the name of the repository in the **repository** command, you enter the config-Repository configuration submode (see the Syntax Description).

do	EXEC command. Allows you to perform any of the EXEC commands in this mode (see do, page A-100).
end	Exits the config-Repository mode and returns you to the EXEC mode.
exit	Exits this mode.
no	Negates the command in this mode. Two keywords available: • url—Repository URL. • user—Repository username and password for access.
url	URL of the repository. This can be a maximum of 80 alphanumeric characters (see Table A-12).
user	Configure username and password for access. This can be a maximum of 30 alphanumeric characters.

Table A-12 URL Keywords

Keyword	Source of Destination
word	Enter repository URL, including server and path info. This can be a maximum of 80 alphanumeric characters.
cdrom:	Local CD-ROM drive (read only).
disk:	Local storage. All local repositories are created on the /localdisk partition. When you specify disk:// in the repository URL, the system creates directories in a path that is relative to /localdisk. For example, if you entered **disk://backup,** the directory is created at /localdisk/backup. You can run the **show repository** *repository_name* to view all the files in the local repository.
ftp:	Source or destination URL for an FTP network server. Use url ftp://*server/path*[1].
nfs:	Source or destination URL for an NFS network server. Use url nfs://*server:path*[1].

Table A-12 URL Keywords (continued)

Keyword	Source of Destination
sftp:	Source or destination URL for an SFTP network server. Use url sftp://*server*/*path*[1].
tftp:	Source or destination URL for a TFTP network server. Use url tftp://*server*/*path*[1].

1. Server is the server name and path refers to /subdir/subsubdir. Remember that a colon (:) is required after the server for an NFS network server.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

None.

Examples

```
anm-va/admin(config)# repository myrepository
anm-va/admin(config-Repository)# url sftp://starwars.test.com/repository/system1
anm-va/admin(config-Repository)# user luke password skywalker
anm-va/admin(config-Repository)# exit
anm-va/admin(config)#
```

service sshd

To specify a service to manage, use the **service sshd** command in Configuration mode. The only service to manage is Secure Shell Daemon; the daemon program for SSH. To disable this function, use the **no** form of this command.

service sshd

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

None.

Examples

```
anm-va/admin(config)# service sshd
```

snmp-server community

To set up the community access string to permit access to the Simple Network Management Protocol (SNMP), use the **snmp-server community** command in Configuration mode. To disable this function, use the **no** form of this command.

snmp-server community *word* **ro**

Syntax Description

word	Access string that functions much like a password, allowing access to SNMP. No blank spaces allowed. This can be a maximum of 255 alphanumeric characters.
ro	Specifies read-only access.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

The **snmp-server community** command requires a community string and the **ro** argument; otherwise, an error occurs.

Examples

```
anm-va/admin(config)# snmp-server community new ro
```

snmp-server contact

To configure the SNMP contact MIB value on the system, use the **snmp-server contact** command in Configuration mode. To remove the system contact information, use the **no** form of this command.

snmp-server contact *word*

Syntax Description

word	String that describes the system contact information of the node. Enter a maximum of 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

None.

Examples

```
anm-va/admin(config)# snmp-server contact Luke
```

snmp-server host

To send SNMP traps to a remote user, use the **snmp-server host** command in Configuration mode. To remove trap forwarding, use the **no** form of this command.

snmp-server host {*ip-address* | *hostname*} **version** {**1** | **2c**} *community*

Syntax Description

ip-address	IP address of the SNMP notification host.
hostname	Name of the SNMP notification host. Enter a maximum of 32 alphanumeric characters.
version {**1** | **2c**}	(Optional) Version of the SNMP used to send the traps. Default = 1.
community	Password-like community string that is sent with the notification operation.

Defaults

Disabled.

Command Modes

Configuration

Usage Guidelines

The command takes arguments as listed; otherwise, an error occurs.

Examples

```
anm-va/admin(config)# snmp-server community new ro 10
anm-va/admin(config)# snmp-server host 209.165.202.129 version 1 password
```

snmp-server location

To configure the SNMP location MIB value on the system, use the **snmp-server location** command in Configuration mode. To remove the system location information, use the **no** form of this command.

snmp-server location *word*

Syntax Description

word	String that describes the system's physical location information. Enter a maximum of 255 alphanumeric characters.

Defaults

No default behavior or values.

Command Modes

Configuration

Usage Guidelines

Cisco recommends that you use underscores (_) or hyphens (-) between the terms within the *word* string. If you use spaces between terms within the *word* string, you must enclose the string in quotation marks (“).

Examples

Example 1

```
anm-va/admin(config)# snmp-server location Building_3/Room_214
```

Example 2

```
anm-va/admin(config)# snmp-server location “Building 3/Room 214”
```

username

To add a user who can access the command line, use the **username** command in Configuration mode. If the user already exists, the password, the privilege level, or both change with this command. To delete the user from the system, use the **no** form of this command.

username *username* **password** {**hash** | **plain**} *password* **role** {**admin** | **user**] [**disabled** [**email** *email-address*]] [**email** *email-address*]

If you supply the username of an existing user, the command changes the password or privilege level for the user. For an existing user, use the following options:

username *username* **password role** {**admin** | **user**} *password*

Syntax Description

username	Only one word for the username argument. Blank spaces and quotation marks (“) are not allowed. This can be a maximum of 31 alphanumeric characters.
password *password*	Password character length This can be a maximum of 40 alphanumeric characters. You must specify the password for all new users.
hash | **plain**	Type of password. This can be a maximum of 34 alphanumeric characters.
role admin | **user**	Sets the privilege level for the user.
disabled	(Optional) Disables the user according to the user’s e-mail address.
email *email-address*	(Optional) The user’s e-mail address. For example, *user1@mydomain.com*.

Defaults

The initial user during setup.

Command Modes

Configuration

Usage Guidelines

The **username** command requires that the username and password keywords precede the hash | plain and the admin | user options.

Examples

Example 1

```
anm-va/admin(config)# username admin password hash ###### role admin
```

Example 2

```
anm-va/admin(config)# username admin password plain Secr3tp@swd role admin
```

Example 3

```
anm-va/admin(config)# username admin password plain Secr3tp@swd role admin email
admin123@mydomain.com
```