System Commands

This chapter describes the command-line interface (CLI) commands that you can use to manage and monitor the Prime Cable Provisioning Device Provisioning Engine (DPE).

If you run these commands on an unlicensed DPE, a message similar to this one appears:

```
This DPE is not licensed. Your request cannot be serviced. Please check with your
system administrator for a DPE license.
```

The commands described in this chapter are:

Command	Description	CLI Mode		Required Privileges			
		Login	Enable	PRIV_DPE_READ	PRIV_DPE_UPDATE	PRIV_DPE_SECURITY	PRIV_DEVICE_READ
aaa authentication	Configures user authentication, authorization, and accounting services.		✓	✓	✓	✓	
disable	Exits the enable mode.		✓	✓	✓		
enable	Accesses the enable mode.	✓		✓	✓		
exit	Closes a Telnet connection to the DPE.	✓	✓	✓			
help	Displays a usage screen that assists you in using the commands on the CLI.	✓	✓	✓			
password	Changes the local system password, using which you can access the DPE.		✓	✓	✓	✓	
show clock	Displays the current system time and date.	✓	✓	✓			

Command	Description	CLI Mode		Required Privileges			
		Login	Enable	PRIV_DPE_READ	PRIV_DPE_UPDATE	PRIV_DPE_SECURITY	PRIV_DEVICE_READ
show commands	Displays all available commands on the CLI.	✓	✓	✓			
show disk	Identifies the disk that the DPE is currently using.	✓	✓	✓			
show hostname	Displays the hostname of the DPE.	✓	✓	✓			
show ip	Displays the current general IP settings configured on the DPE.	✓	✓	✓			
show ip route	Displays the IP routing table of the DPE.	✓	✓	✓			
show memory	Displays the current memory and swap space that are available on the DPE server.	✓	✓	✓			
show running-config	Displays the current configuration on the DPE.	✓	✓	✓			
show tftp files	Displays the files that are stored in the DPE cache.		✓	✓	✓		
show version	Displays the current version of DPE software.	✓	✓	✓			
show snmp-hash read/write community	Displays the new read/write community strings generated based on hashed SNMP.	✓	✓	✓			
tacacs-server host	Adds the TACACS+ server host address to the list of hosts.		✓	✓	✓	✓	
no tacacs-server host	Removes the TACACS+ server host address from the list of hosts.		✓	✓	✓	✓	

Command	Description	CLI Mode		Required Privileges			
		Login	Enable	PRIV_DPE_READ	PRIV_DPE_UPDATE	PRIV_DPE_SECURITY	PRIV_DEVICE_READ
tacacs-server retries	The maximum number of times the TACACS+ client tries to connect with the TACACS+ server.		✓	✓	✓	✓	
tacacs-server timeout	Sets the maximum length of time that the TACACS+ client waits for a response from the TACACS+ server.		✓	✓	✓	✓	
radius-server host	Adds the RADIUS server host address to the list of hosts.		✓	✓	✓	✓	
no radius-server host	Removes the RADIUS server host address from the list of hosts.		✓	✓	✓	✓	
radius-server retries	The maximum number of times the RADIUS client tries to connect with the RADIUS server.		✓	✓	✓	✓	
radius-server timeout	Sets the maximum length of time that the RADIUS client waits for a response from the RADIUS server.		✓	✓	✓	✓	
uptime	Shows the time during which the system is operational.	✓	✓	✓			

aaa authentication

Use the **aaa authentication** command to configure the CLI for user authentication, authorization, and accounting services using the local login or remote TACACS+ or RADIUS servers. This setting applies to all Telnet and console CLI interfaces.

Syntax Description

aaa authentication {**tacacs** | **radius**}

- **tacacs**—In this mode, the CLI server sequentially attempts a TACACS+ exchange with each server in the TACACS+ server list. The attempts continue for a specified number of retries. If the CLI reaches the end of the server list without a successful protocol exchange, a message is displayed

indicating that the servers were not reachable. The CLI again prompts for the username and password. Enter the local CLI admin username and password to gain access to the CLI even if the TACACS+ service is unavailable.

- **radius**—In this mode, user authentication is performed via RADIUS server. The RADIUS server authentication details are similar to TACACS+ server. Cisco AV-pair needs to be configured in the RADIUS server to support DPE CLI RADIUS authentication. Cisco IOS/PIX 6.x is the RADIUS server that supports Cisco AV-pair in the Access Control Server (ACS) server. The Cisco AV-pair attribute value is:

  cp:groups=<group-name>

For example:

cp:groups=Administrators

Note When you telnet to DPE CLI, you are prompted to enter the username and password. You can either enter the username and password of the local DPE CLI admin user or a user configured in TACACS or Radius. At any given time, either of the TACACS or Radius server is enabled.

Defaults

AAA authentication is always enabled for the local admin user, even when RADIUS or TACACS+ is not configured.

Examples

This result occurs when you enable user authentication in the TACACS+ mode.

```
bac_dpe# aaa authentication tacacs
% OK
```

This result occurs when you enable user authentication in the radius mode.

```
bac_dpe# aaa authentication radius
% OK
```

disable

Use the **disable** command to exit the enable mode on the DPE. Once you exit the enable mode, you can view only those commands that relate to system configuration.

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Examples

```
bac_dpe# disable
bac_dpe>
```

enable

Use the **enable** command to access the DPE in the enable mode. You need not access the enable mode to view the system configuration; however, only in this mode can you change the system configuration, state, and data.

You must have the PRIV_DPE_UPDATE privilege to enter the enable mode using **enable** command.

Syntax Description No keywords or arguments.

Defaults The default password to access the enable mode is **changeme**.

Examples

```
bac_dpe> enable
bac_dpe#
```

This result occurs if you do not have the PRIV_DPE_UPDATE privilege.

```
bac_dpe# enable
Sorry, insufficient privileges.
```

exit

Use the **exit** command to close a Telnet connection to the DPE and return to the login prompt. After running this command, a message indicates that the Telnet connection has been closed.

Syntax Description No keywords or arguments.

Defaults No default behavior or values.

Examples This result occurs when you have accessed the CLI by specifying the hostname of the DPE.

```
bac_dpe# exit
% Connection closed.
Connection to 10.10.2.10 closed by foreign host.
```

This result occurs when you have accessed the CLI without specifying the hostname.

```
bac_dpe# exit
% Connection closed.
Connection to 0 closed by foreign host.
```

This result occurs when the Telnet connection closes because the CLI has been idle and the timeout period expired.

```
bac_dpe#
```

```
% Connection timed out.
Connection to 0 closed by foreign host.
```

help

Use the **help** command to display a help screen that can assist you in using the DPE CLI. If you need help on a particular command, or to list all available commands, enter *command* **?** or **?**, respectively.

Once you enter the command, a screen prompt appears to explain how you can use the help function.

Command Types

Two types of help are available:

1. Full help is available when you are ready to enter a command argument, such as **show ?**, and describes each possible argument.
2. Partial help is available when you enter an abbreviated argument and want to know what arguments match the input; for example, **show c?**.

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Examples

This result occurs when you use the **help** command.

```
bac_dpe# 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.

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 c?").
```

This result occurs when you invoke the full help function for a command; for example, **show ?**.

Note The **help** command output differs depending on the mode–login or enable–in which you run the command.

```
bac_dpe# show ?

  bundles         Shows the archived bundles.
  clock           Shows the current system time.
  commands        Shows the full command hierarchy.
  device-config   Show device configuration
  disk            Shows the current disk usage.
  dpe             Shows the status of the DPE process if started.
  hostname        Shows the system hostname.
  ip              Shows IP configuration details.
```

```
  log             Shows recent log entries.
  memory          Shows the current memory usage.
  running-config  Shows the DPE configuration.
  tftp            Shows TFTP details.
  version         Shows DPE version.
```

This result occurs when you invoke the partial help function for arguments of a command; for example, **show clock**.

```
bac_dpe# show c?
clock     commands  cpu
bac_dpe# show clock
Thu Oct 25 01:20:14 EDT 2007
```

password

Use the **password** command to change the local system password, which you use to access the DPE. The system password is changed automatically for future logins and for FTP access.

Note The changes that you introduce through this command take effect for new users, but users who are currently logged in are not disconnected.

Syntax Description

password *password*

password—Identifies the new DPE password.

Defaults

The default password for accessing the DPE is **changeme**.

Examples

This result occurs when you change the password without being prompted (using an approach easier for scripting).

```
bac_dpe# password password2
Password changed successfully.
```

This result occurs when you are prompted for the password, and the password is changed successfully.

```
bac_dpe# password
New password: <password1>
Retype new password: <password1>
Password changed successfully.
```

This result occurs when you enter an incorrect password.

```
bac_dpe# password
New password: <password1>
Retype new password: <paswsord1>
Sorry, passwords do not match.
```

show

Use the **show** command to view system settings and status. Table 2-1 lists the keywords that you can use with this command.

Note To view the output for **show disk, show ip, show ip route**, and **show memory** on Linux, see *man mpstat*.

Table 2-1 List of show Commands

Command	Description	
show clock	Displays the current system time and date.	
	Syntax Description No keywords or arguments.	**Defaults** No default behavior or values.

	Example
	This result occurs when you run the show clock command:
	`bac_dpe# show clock`
	`Thu Oct 25 01:20:14 EDT 2007`	

Table 2-1 List of show Commands (continued)

Command	Description
show commands	Displays all commands on the DPE depending on the mode (login or enable) in which you access the CLI.

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Examples

This result occurs in the login mode.

```
bac_dpe> show commands
> enable
> exit
> help
> show bundles
> show clock
> show commands
> show device-config duid <DUID>
> show device-config mac <mac-address>
> show disk
> show dpe
> show dpe config
> show hostname
> show ip
> show ip route
> show log
> show log last <1..9999>
> show log run
> show memory
> show running-config
> show version
> uptime
```

Note The output presented in these examples is trimmed.

This result occurs in the enable mode.

```
bac_dpe# show commands
> aaa authentication radius
> aaa authentication tacacs
> clear bundles
> clear cache
> clear logs
> debug dpe cache
> debug dpe connection
> debug dpe dpe-server
> debug dpe event-manager
> debug dpe exceptions
> debug dpe framework
> debug dpe messaging
> debug on
> debug service packetcable 1 netsnmp
> debug service packetcable 1 registration
> debug service packetcable 1 registration-detail
> debug service packetcable 1 snmp
> debug service tftp 1 <ipv4|ipv6>
> disable
> [more]
```

To view the commands that flow beyond your screen, place the cursor at the `[more]` prompt and press **Spacebar**.

Table 2-1 List of show Commands (continued)

Command	Description	
show disk	Identifies the disk that the DPE is currently using. Once you enter the command, disk drive statistics appear.	
	Syntax Description	**Defaults**
	No keywords or arguments.	No default behavior or values.
show hostname	Displays the hostname configured for the DPE.	
	Syntax Description	**Defaults**
	No keywords or arguments.	No default behavior or values.

	Example
	`bac_dpe# show hostname`
	`hostname = bac_dpe.example.com`	

show ip	Displays the current general IP settings configured on the DPE. The DPE uses these settings when it reboots. For specific interface settings, use the **show interface** commands.	
	Syntax Description	**Defaults**
	No keywords or arguments.	No default behavior or values.
show ip route	Displays the IP routing table of the DPE, including any custom routes. The default gateway is indicated by the G flag in the flags column.	
	Syntax Description	**Defaults**
	No keywords or arguments.	No default behavior or values.
show memory	Displays the current memory and swap space that are available on the device running the DPE.	
	Syntax Description	**Defaults**
	No keywords or arguments.	No default behavior or values.

Table 2-1 List of show Commands (continued)

Command	Description
show running-config	Displays the current configuration on the DPE.

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Example

```
bac_dpe# show running-config
     dpe port 49186
     dpe provisioning-group primary default
     dpe rdu-server bacdev2-t5220-1-d8 49187
     dpe shared-secret <value is set>
     log level 5-notification
     no debug all
     no debug dpe cache
     no debug dpe connection
     no debug dpe device-config-compression
     no debug dpe device-config-compression-details
     no debug dpe device-config-decompression
     no debug dpe device-config-decompression-details
     no debug dpe dpe-server
     no debug dpe event-manager
     no debug dpe exceptions
     no debug dpe framework
     no debug dpe messaging
     no debug service packetcable 1 netsnmp
     no debug service packetcable 1 registration
     no debug service packetcable 1 registration-detail
     no debug service packetcable 1 snmp
     no dpe docsis emic-shared-secret
     no dpe docsis shared-secret
     no dpe provisioning-group secondary
     no service packetcable 1 snmp key-material
     radius-server retries 3
     radius-server timeout 3
     service tftp 1 ipv4 verify-ip
     service tftp 1 ipv6 verify-ip
     snmp-server community baccread ro
     snmp-server community baccwrite rw
     snmp-server contact <unknown>
     snmp-server location <unknown>
     snmp-server udp-port 8001
     tacacs-server retries 2
     tacacs-server timeout 5
```

Table 2-1 List of show Commands (continued)

<table>
<tr><th>Command</th><th>Description</th></tr>
<tr><td>show tftp files</td><td>Displays the files that are stored in the DPE cache.
You cannot use this command to display the files that are stored in the local directory.
Syntax Description | Defaults
No keywords or arguments. | The default is 500.
Example
This result occurs when you run the show tftp files command:
<pre>bac_dpe# show tftp files

The list of TFTP files currently in DPE cache

filename   size

bronze.cm   310
gold.cm   310
silver.cm   310
unprov.cm   310
unprov_11.cm   320
unprov_30.cm   264
unprov_30v4.cm   152
unprov_30v6.cm   196
unprov_packet_cable.bin   333
unprov_wan_man.cfg   72

DPE caching 10 external files.
Listing the first 10 files, 0 files omitted</pre></td></tr>
<tr><td>show version</td><td>Displays the current version of DPE software.
Syntax Description | Defaults
No keywords or arguments. | No default behavior or values.
Example
This result occurs when you run the show version command:
<pre>bac_dpe# show version
Version: BAC 5.1 (BAC_LNX_TRUNK_20121203_2231_1128)</pre></td></tr>
<tr><td>show snmp-hash read/write community</td><td>Displays the new read/write community strings generated based on hashed SNMP.
Syntax Description | Defaults
show snmp-hash read community ip_address
show snmp-hash write community ip_address | No default behavior or values.
Example
This result occurs when you run the show snmp-hash read/write community command:
<pre>bac_dpe# show snmp-hash read community 10.0.0.45
bac_dpe# show snmp-hash write community 10.0.0.45

bac_dpe# show snmp-hash read community 2001:0:0:0:f513:93b7:5c24:f153
bac_dpe# show snmp-hash write community 2001:0:0:0:f513:93b7:5c24:f153</pre></td></tr>
</table>

tacacs-server

Use the **tacacs-server** command to configure user authentication settings in TACACS+. Table 2-2 lists the keywords that you can use with this command.

Table 2-2 List of tacacs-server Commands

Command	Description
tacacs-server host	Adds the TACACS+ server host address to the list of hosts. When you enable TACACS+ authentication, the client attempts to authenticate the user with the first reachable server. If the authentication succeeds the user is allowed to log in depending on the privileges obtained from the user group specified in the CISCO AV Pair (cp:groups). If the first server is not reachable, then the next server in the list is attempted till the list exhausts. To remove a TACACS+ server from the list of TACACS+ servers in the CLI, use the **no** form of this command. See no tacacs-server host, page 2-14.
	Syntax Description **tacacs-server host** *host* [**key** *encryption-key*] • *host*—Specifies the IP address or the hostname of the TACACS+ server. • *encryption-key*—Identifies the encryption key (optional).
	Defaults No default behavior or values.

	Examples
	
	This result occurs when you add a TACACS+ server using its IP address (10.0.1.1) without encryption.
	
	`bac_dpe# tacacs-server host 10.0.1.1`
	`% OK`
	
	This result occurs when you add a TACACS+ server using its IP address (10.0.1.1) and an encryption key (hg667YHHj).
	
	`bac_dpe# tacacs-server host 10.0.1.1 key hg667YHHj`
	`% OK`
	
	This result occurs when you add a TACACS+ server using its hostname (tacacs1.cisco.com) without encryption.
	
	`bac_dpe# tacacs-server host tacacs1.example.com`
	`% OK`
	
	This result occurs when you add a TACACS+ server using its hostname (tacacs1.cisco.com) and an encryption key (hg667YHHj).
	
	`bac_dpe# tacacs-server host tacacs1.example.com key hg667YHHj`
	`% OK`

Table 2-2 List of tacacs-server Commands (continued)

Command	Description
no tacacs-server host	Removes the TACACS+ server host address from the list of hosts. To add a TACACS+ server, see tacacs-server host, page 2-13.
	Syntax Description **no tacacs-server host** *host* *host*—Specifies either the IP address or the hostname of the TACACS+ server. **Defaults** No default behavior or values.

	Examples
	This result occurs when you remove a TACACS+ server using its IP address.
	`bac_dpe# no tacacs-server host 10.0.1.1`
	`% OK`
	This result occurs when you remove a TACACS+ server using its hostname.
	`bac_dpe# no tacacs-server host tacacs1.example.com`
	`% OK`

tacacs-server retries	Sets the maximum number of times the TACACS+ protocol exchange is tried before the TACACS+ client considers a specific TACACS+ server unreachable. When this limit is reached, the TACACS+ client moves to the next server in its TACACS+ server list till the list has been exhausted.
	Syntax Description **tacacs-server retries** *value* *value*—Specifies a dimensionless number from 1 to 100. This value applies to all TACACS+ servers. **Defaults** The default is 3.

	Example
	This result occurs when you configure retry value for TACACS+ server:
	`bac_dpe# tacacs-server retries 10`
	`% OK`

tacacs-server timeout	Sets the maximum length of time that the TACACS+ client waits for a response from the TACACS+ server before it considers the protocol exchange to have failed.
	Syntax Description **tacacs-server timeout** *value* *value*—Specifies the maximum length of time that the TACACS+ client waits for a TACACS+ server response. This value must be from 1 to 300 seconds, and applies to all TACACS+ servers. **Defaults** The default is 5 seconds.

	Example
	This result occurs when you configure timeout value for TACACS+ server:
	`bac_dpe# tacacs-server timeout 10`
	`% OK`

radius-server

Use the **radius-server** command to configure user authentication settings in RADIUS. Table 2-3 lists the keywords that you can use with this command.

Table 2-3 List of radius-server Commands

Command	Description
radius-server host	Adds the RADIUS server host address to the list of hosts. When you enable RADIUS authentication, the client attempts to authenticate the user with the first reachable server. If the authentication succeeds, the user is allowed to login depending on the privileges obtained from the user group specified in the CISCO AV Pair (cp:groups). If the first server is not reachable then the next server in the list is attempted till the list exhausts. The order of the commands that appears in show run is the order in which they are contacted. To remove a RADIUS server from the list of RADIUS servers in the CLI, use the no form of this command. See no radius-server host, page 2-16.
	Syntax Description **radius-server host** *host* [**key** *encryption-key*] [**port** *port-number*] • *host*—Specifies the IP address or the hostname of the RADIUS server. • *encryption-key*—Identifies the encryption key (optional). • *port-number*—Identifies the port number (optional).
	Defaults No default behavior or values.

	Examples
	
	This result occurs when you add a RADIUS server using its IP address with key and port number.
	
	`bac_dpe# radius-server host 10.10.10.10 key secret port 1812`
	`% OK`

Table 2-3 List of radius-server Commands (continued)

Command	Description	
no radius-server host	Removes the RADIUS server host address from the list of hosts. For details about adding a RADIUS server, see radius-server host, page 2-15.	
	Syntax Description **no radius-server host** *host* *host*—Specifies either the IP address or the hostname of the RADIUS server.	**Defaults** No default behavior or values.

	Examples
	This result occurs when you remove a RADIUS server using its IP address:
	`bac_dpe# no radius-server host 10.10.10.10`
	`% OK`	

radius-server retries	Sets the maximum number of times the RADIUS protocol exchange is tried before the RADIUS client considers a specific RADIUS server unreachable. When this limit is reached, the RADIUS client moves to the next server in its RADIUS server list till the list has been exhausted.	
	Syntax Description **radius-server retries** *value* *value*—Specifies a dimensionless number from 1 to 10. This value applies to all RADIUS servers.	**Defaults** The default is 3.

	Example
	This result occurs when you configure retry value for RADIUS server:
	`bac_dpe# radius-server retries 10`
	`% OK`	

radius-server timeout	Sets the maximum length of time that the RADIUS client waits for a response from the RADIUS server before it considers the protocol exchange to have failed.	
	Syntax Description **radius-server timeout** *value* *value*—Specifies maximum length of time that the RADIUS client waits for a RADIUS server response. This value must be from 1 to 30 seconds, and applies to all RADIUS servers.	**Defaults** The default is 3 seconds.

	Example
	This result occurs when you configure timeout value for RADIUS server:
	`bac_dpe# radius-server timeout 5`
	`% OK`	

uptime

Use the **uptime** command to identify how long the system has been operational. This information is useful for determining how frequently the device is rebooted. It is also helpful when checking the reliability of the DPE when it is in a stable condition.

Syntax Description

No keywords or arguments.

Defaults

No default behavior or values.

Examples

```
bac_dpe# uptime
  1:47am  up 496 day(s),  8:49,  1 user,  load average: 0.14, 0.07, 0.06
```