



## **Cisco Broadband Access Center DPE CLI Reference**

Release 4.0  
December 2007

### **Americas Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
<http://www.cisco.com>  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 527-0883

Text Part Number: OL-12295-01

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

CCSP, the Cisco Square Bridge logo, Follow Me Browsing, and StackWise are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, and Study are service marks of Cisco Systems, Inc.; and Access Registrar, Aironet, ASIST, BPX, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Empowering the Internet Generation, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, FormShare, GigaDrive, GigaStack, HomeLink, Internet Quotient, IOS, IP/TV, iQ Expertise, the iQ log Net Readiness Scorecard, LightStream, Linksys, MeetingPlace, MGX, the Networkers logo, Networking Academy, Network Registrar, *Packet*, PIX, Post-Routing, Pre-Roi ProConnect, RateMUX, ScriptShare, SlideCast, SMARTnet, StrataView Plus, SwitchProbe, TeleRouter, The Fastest Way to Increase Your Internet Quotient, TransPath, and are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0501R)



# CONTENTS

## **Preface**   vii

Audience	vii
Document Revision History	vii
How This Guide Is Organized	viii
Conventions	viii
Product Documentation	ix
Related Documentation	ix
Obtaining Documentation and Submitting a Service Request	x

---

## **CHAPTER 1**

### **Introduction to the Broadband Access Center CLI**   1-1

DPE Licensing	1-1
Accessing the DPE CLI	1-2
Accessing the DPE CLI from a Local Host	1-3
Accessing the DPE CLI from a Remote Host	1-4

---

## **CHAPTER 2**

### **System Commands**   2-1

aaa authentication	2-2
disable	2-3
enable	2-3
enable password	2-4
exit	2-5
help	2-5
password	2-7
show	2-8
tacacs-server	2-16
uptime	2-18

---

## **CHAPTER 3**

### **DPE Configuration Commands**   3-1

clear cache	3-2
dpe docsis shared-secret	3-3
no dpe docsis shared-secret	3-4
dpe port	3-4

dpe provisioning-group primary	3-5
no dpe provisioning-group primary	3-6
dpe provisioning-group secondary	3-6
no dpe provisioning-group secondary	3-7
dpe rdu-server	3-8
dpe reload	3-10
dpe shared-secret	3-11
dpe start   stop	3-11
interface ip pg-communication	3-12
no interface ip pg-communication	3-12
interface ip provisioning	3-13
no interface ip provisioning	3-14
interface ip provisioning fqdn	3-15
no interface ip provisioning fqdn	3-15
service tftp	3-16
service tod	3-20
show device-config	3-21
show dpe	3-22
show dpe config	3-23

## CHAPTER 4

### PacketCable Voice Technology Commands 4-1

debug service packetcable	4-2
service packetcable enable	4-4
no service packetcable enable	4-5
service packetcable registration encryption enable	4-5
no service packetcable registration encryption	4-6
service packetcable registration kdc-service-key	4-6
service packetcable registration policy-privacy	4-7
service packetcable snmp key-material	4-7
no service packetcable snmp key-material	4-8
service packetcable snmp timeout	4-9
service packetcable show snmp log	4-9

## CHAPTER 5

### SNMP Agent Commands 5-1

snmp-server community	5-2
no snmp-server community	5-2

snmp-server contact	5-3
no snmp-server contact	5-3
snmp-server host	5-4
no snmp-server host	5-4
snmp-server inform	5-5
no snmp-server inform	5-5
snmp-server location	5-6
no snmp-server location	5-6
snmp-server reload	5-7
snmp-server start   stop	5-7
snmp-server udp-port	5-8
no snmp-server udp-port	5-8

---

**CHAPTER 6**
**Log System Management Commands 6-1**

clear logs	6-2
debug dpe	6-3
debug on	6-6
debug service tftp ipv4   ipv6	6-7
no debug service tftp ipv4   ipv6	6-7
no debug	6-8
log level	6-8
show log	6-9

---

**CHAPTER 7**
**Support and Troubleshooting Commands 7-1**

clear bundles	7-1
show bundles	7-2
support bundle cache	7-2

---

**GLOSSARY**


---

**INDEX**





## Preface

---

The *Cisco Broadband Access Center DPE CLI Reference, Release 4.0*, describes the command-line interface (CLI) commands that this release of Cisco Broadband Access Center, which is called BAC throughout the guide, supports on the Device Provisioning Engine (DPE).

This preface provides an outline of the other chapters in this guide, details information about related documents that support this BAC release, and demonstrates the styles and conventions used in the guide.

This preface contains the following sections:

- [Audience, page vii](#)
- [Document Revision History, page vii](#)
- [How This Guide Is Organized, page viii](#)
- [Conventions, page viii](#)
- [Product Documentation, page ix](#)
- [Related Documentation, page ix](#)
- [Obtaining Documentation and Submitting a Service Request, page x](#)

## Audience

This guide is written for those using the CLI of the BAC DPE.

## Document Revision History

The Document Revision History table records technical changes to this document. The table shows the date of the change, and a brief summary of the change.

Date	Change Summary
November 17, 2009	Revised the description of the <b>interface ip pg-communication</b> command in the <a href="#">Chapter 3, “DPE Configuration Commands”</a> .
December 31, 2007	Initial release.

# How This Guide Is Organized

The major sections of this guide are:

<a href="#">Introduction to the Broadband Access Center CLI</a>	Describes DPE licensing, and explains how you access the DPE CLI.
<a href="#">System Commands</a>	Describes commands used to manage various system aspects of the DPE.
<a href="#">DPE Configuration Commands</a>	Describes commands used to configure the DPE.
<a href="#">PacketCable Voice Technology Commands</a>	Describes commands related to the PacketCable voice technology.
<a href="#">SNMP Agent Commands</a>	Describes commands related to the SNMP agent on the DPE.
<a href="#">Log System Management Commands</a>	Describes commands related to log management of the DPE.
<a href="#">Support and Troubleshooting Commands</a>	Describes commands used to support and troubleshoot the DPE.
<a href="#">Glossary</a>	Defines terminology used in this guide and generally applicable to the technologies being discussed.

## Conventions

This guide uses the following conventions:

Item	Convention
Commands and keywords	<b>boldface</b> font
Variables for which you supply values	<i>italic</i> font
Displayed session and system information	screen font
Information you enter	<b>boldface screen</b> font
Variables you enter	<i>italic screen</i> font
Menu items and button names	<b>boldface</b> font
Selecting a menu item in paragraphs	<b>Option &gt; Network Preferences</b>
Selecting a menu item in tables	Option > Network Preferences



### Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.



**Caution**

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

## Product Documentation

**Note**

We sometimes update the printed and electronic documentation after original publication. Therefore, you should also review the documentation on [Cisco.com](http://cisco.com) for any updates.

[Table 1](#) describes the documentation that is available for this release of BAC.

**Table 1**      **Product Documentation**

Document Title	Available Format
<i>Release Notes for Cisco Broadband Access Center 4.0</i>	<ul style="list-style-type: none"> <li>PDF file on the product CD-ROM</li> <li>On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgts/ps529/prod_release_notes_list.html">http://cisco.com/en/US/products/sw/netmgts/ps529/prod_release_notes_list.html</a></li> </ul>
<i>Installation and Setup Guide for Cisco Broadband Access Center, Release 4.0</i>	<ul style="list-style-type: none"> <li>PDF file on the product CD-ROM</li> <li>On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgts/ps529/prod_installation_guides_list.html">http://cisco.com/en/US/products/sw/netmgts/ps529/prod_installation_guides_list.html</a></li> </ul>
<i>Cisco Broadband Access Center Administrator Guide, Release 4.0</i>	<ul style="list-style-type: none"> <li>PDF file on the product CD-ROM</li> <li>On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgts/ps529/prod_maintenance_guides_list.html">http://cisco.com/en/US/products/sw/netmgts/ps529/prod_maintenance_guides_list.html</a></li> </ul>
<i>Cisco Broadband Access Center DPE CLI Reference, Release 4.0</i>	<ul style="list-style-type: none"> <li>PDF file on the product CD-ROM</li> <li>On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgts/ps529/prod_command_reference_list.html">http://cisco.com/en/US/products/sw/netmgts/ps529/prod_command_reference_list.html</a></li> </ul>

## Related Documentation

**Note**

We sometimes update the printed and electronic documentation after original publication. Therefore, you should also review the documentation on [Cisco.com](http://cisco.com) for any updates.

Table 2 describes additional documentation that is available for this release of BAC.

**Table 2**      **Related Product Documentation**

Document Title	Available Format
<i>Release Notes for Cisco Network Registrar 7.0</i>	On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_release_notes_list.html">http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_release_notes_list.html</a>
<i>Installation Guide for Cisco Network Registrar, Release 7.0</i>	On Cisco.com <a href="http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_installation_guides_list.html">http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_installation_guides_list.html</a>
<i>User Guide for Cisco Network Registrar, Release 7.0</i>	On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgtsw/ps1982/products_user_guide_list.html">http://cisco.com/en/US/products/sw/netmgtsw/ps1982/products_user_guide_list.html</a>
<i>CLIFrame.html</i> in the <i>/docs</i> directory	On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_command_reference_list.html">http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_command_reference_list.html</a>
<i>Quick Start Guide for Cisco Network Registrar, Release 7.0</i>	On Cisco.com: <a href="http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_installation_guides_list.html">http://cisco.com/en/US/products/sw/netmgtsw/ps1982/prod_installation_guides_list.html</a>

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.



# CHAPTER 1

## Introduction to the Broadband Access Center CLI

---

This chapter describes licensing requirements for the Cisco Broadband Access Center (BAC) Device Provisioning Engine (DPE) and how you can access the command-line interface (CLI) of the DPE.

- [DPE Licensing, page 1-1](#)
- [Accessing the DPE CLI, page 1-2](#)
  - [Accessing the DPE CLI from a Local Host, page 1-3](#)
  - [Accessing the DPE CLI from a Remote Host, page 1-4](#)

## DPE Licensing

Licensing controls the number of DPEs that you can use. To configure the DPE from the CLI, you must have a valid license. If you run the commands described in this guide on an unlicensed DPE, the following message appears:

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

For details on how to obtain the license file, refer to the *Release Notes for Cisco Broadband Access Center 4.0*. Once you receive your license file, install BAC. Then, from the administrator user interface, use the following procedure to install the licenses that you purchased:



---

**Note** Before installing your license, ensure that you back it up in case you have to reinstall BAC.

---

- 
- Step 1** Once you receive your license file, save each file on the system from which you intend to launch the BAC administrator user interface.
- Step 2** Launch your web browser on that system.

**Step 3** Enter the administrator's location using this syntax:

```
http://machine_name:port_number/
```



**Note** To access the administrator user interface via HTTP over SSL, also known as HTTPS, enter:  

```
https://machine_name:port_number/
```

- *machine\_name*—Identifies the computer on which the RDU is running.
- *port\_number*—Identifies the computer port on which the server side of the administrator application runs.

The default port number is:

- 8100 for HTTP over TCP
- 8443 for HTTP over SSL

The main login page appears.

**Step 4** Enter the default username (**admin**) and default password (**changeme**).



**Note** If you are logging in for the first time, the Change Password screen appears. Enter a new password and confirm it. The password that you enter must have at least eight characters.

**Step 5** Click **Login**.

The Main Menu page appears.

**Step 6** Click the license link at the top of the Main Menu page, or choose **Configuration > License Keys**.

The Manage License Keys page appears.

**Step 7** In the License File field, enter the complete path to the location of the license file on your local system. Remember to include the name of the license file while specifying the pathname. Or, click **Browse**.

**Step 8** Click **Add/Upgrade**.

The details regarding the license file appear. For details on licensing in this release, refer to the *Release Notes for Cisco Broadband Access Center 4.0*.

## Accessing the DPE CLI

To access the DPE CLI, open a Telnet session to port 2323 from a local or remote host. Before you proceed, however, familiarize yourself with the access levels on the DPE.

BAC specifies a certain access level to authorize DPE access. [Table 1-1](#) identifies the two access levels, which are also known as command modes. Each mode provides access to a specific set of commands.

**Table 1-1** Command Modes on the DPE CLI

Mode	Description	Prompt
Login	Enables user commands for viewing the system configuration.	bac_dpe>
Privileged	Enables privileged user commands for viewing, setting, and changing the system configuration, state, and data.	bac_dpe#

Use the [enable, page 2-3](#), and [disable, page 2-3](#), commands to switch between the two modes.

You can access the DPE CLI following the steps described in:

- [Accessing the DPE CLI from a Local Host, page 1-3](#)
- [Accessing the DPE CLI from a Remote Host, page 1-4](#)

## Accessing the DPE CLI from a Local Host

To access the CLI from a local host, you can use:

```
# telnet local_hostname 2323
```

where *local\_hostname* specifies the name of the local host.

Or, you can use:

```
# telnet 0 2323
```

### Defaults

Once you access the CLI, enter the DPE password to continue. The default login and privileged mode passwords are **changeme**.



**Note** Although the default DPE password is **changeme**, it is not the same password that you use to access the BAC administrator user interface.

For information on how to change the login password and the privileged mode password, see [password, page 2-7](#), and [enable password, page 2-4](#), respectively.

### Examples

This result occurs when you access the DPE from a local host specifying its hostname.

```
bac_host# telnet local_bac_dpe 2323
Trying 10.10.2.25...
Connected to local_bac_dpe.example.com.
Escape character is '^]'.

Broadband Access Center 4.0 (SOL_BAC4_0_0_00000000_0000)
Device Provisioning Engine local_bac_dpe

User Access Verification

Password: <changeme>

local_bac_dpe> enable
Password: <changeme>
local_bac_dpe#
```

This result occurs when you access the DPE from a local host without specifying its hostname.

```
bac_host# telnet 0 2323
Trying 0.0.0.0...
Connected to 0.
Escape character is '^]'.

Broadband Access Center 4.0 (SOL_BAC4_0_0_00000000_0000)
Device Provisioning Engine local_bac_dpe
```

```
User Access Verification
```

```
Password: <changeme>
```

```
bac_dpe> enable
```

```
Password: <changeme>
```

```
bac_dpe#
```

## Accessing the DPE CLI from a Remote Host

To access the CLI from a remote host, enter:

```
# telnet remote_hostname 2323
```

where *remote\_hostname* specifies the name of the remote host.



### Note

If you cannot establish a Telnet connection to the CLI, the CLI server is probably not running. You may need to start the server. To start the server, enter:

```
# /etc/init.d/bprAgent start cli
```

### Defaults

Once you access the CLI, you must enter the DPE password to continue. The default login and privileged mode passwords are **changeme**.



### Note

Although the default DPE password is **changeme**, remember that it is not the same password that you use to access the BAC administrator user interface.

For information on how to change the login password and the privileged mode password, see [password, page 2-7](#), and [enable password, page 2-4](#), respectively.

### Examples

This result occurs when you access the DPE from a remote host specifying its hostname.

```
bac_host# telnet remote_bac_dpe 2323
Trying 10.10.2.10...
Connected to remote_bac_dpe.example.com.
Escape character is '^]'.

Broadband Access Center 4.0 (SOL_BAC4_0_0_00000000_0000)
Device Provisioning Engine remote_bac_dpe

User Access Verification

Password: <changeme>

remote_bac_dpe> enable
Password: <changeme>
remote_bac_dpe#
```



## CHAPTER 2

# System Commands

This chapter describes the command-line interface (CLI) commands that you can use to manage and monitor the Cisco Broadband Access Center (BAC) 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	
		Login	Privileged
<a href="#">aaa authentication</a>	Configures user authentication, authorization, and accounting services.		✓
<a href="#">disable</a>	Exits the privileged mode.		✓
<a href="#">enable</a>	Accesses the privileged mode.	✓	
<a href="#">enable password</a>	Changes the local password, using which you access the privileged mode.		✓
<a href="#">exit</a>	Closes a Telnet connection to the DPE.	✓	✓
<a href="#">help</a>	Displays a usage screen that assists you in using the commands on the CLI.	✓	✓
<a href="#">password</a>	Changes the local system password, using which you access the DPE.		✓
<a href="#">show clock</a>	Displays the current system time and date.	✓	✓
<a href="#">show commands</a>	Displays all available commands on the CLI.	✓	✓
<a href="#">show cpu</a>	Identifies CPU usage for the DPE server.	✓	✓
<a href="#">show disk</a>	Identifies the disk that the DPE is currently using.	✓	✓
<a href="#">show hostname</a>	Displays the hostname of the DPE.	✓	✓
<a href="#">show ip</a>	Displays the current general IP settings configured on the DPE.	✓	✓
<a href="#">show ip route</a>	Displays the IP routing table of the DPE.	✓	✓

Command	Description	CLI Mode	
		Login	Privileged
<code>show memory</code>	Displays the current memory and swap space that are available on the DPE server.	✓	✓
<code>show running-config</code>	Displays the current configuration on the DPE.	✓	✓
<code>show tftp files</code>	Displays the files that are stored in the DPE cache.		✓
<code>show version</code>	Displays the current version of DPE software.	✓	✓
<code>tacacs-server host</code>	Adds a TACACS+ server to the end of the TACACS+ client's list of TACACS+ servers.		✓
<code>no tacacs-server host</code>	Removes a TACACS+ server from the list of TACACS+ servers in the CLI.		✓
<code>tacacs-server retries</code>	Sets the maximum number of times the TACACS+ protocol exchange is tried before the TACACS+ client considers a specific TACACS+ server unreachable.		✓
<code>tacacs-server timeout</code>	Sets the maximum length of time that the TACACS+ client waits for a response from the TACACS+ server.		✓
<code>uptime</code>	Identifies how long the system has been 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+ authentication. This setting applies to all Telnet and console CLI interfaces.

TACACS+ is a TCP-based protocol that supports centralized access control for several network devices and user authentication for the DPE CLI. Using TACACS+, a DPE supports multiple users (and their individual usernames) and the login and enable passwords configured at the TACACS+ server.

### Syntax Description

**aaa authentication {local | tacacs}**

- **local**—In this mode, user authentication is enabled via a local login.
- **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, authentication is automatically enabled in the local mode. In this manner, you can gain access to the CLI even if the TACACS+ service is unavailable.



### Note

When you configure TACACS+ authentication, you are prompted to enter the username and password configured at the TACACS+ server; local authentication, however, prompts only for the local configured password.



**Defaults**

AAA authentication is enabled by default in the local mode.

**Examples**

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

```
bac_dpe# aaa authentication local
% OK
```

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

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

This result occurs when you have configured user authentication in the TACACS+ mode and try to access the privileged mode on the DPE (using the **enable** command). If the CLI server is unable to establish a successful protocol exchange with the servers in the TACACS+ list, it reverts to local user authentication and prompts you for the local configured password.

```
bac_dpe> enable
```

```
TACACS+: all hosts unreachable or no hosts configured
Reverting to local authentication mode
Password: <changeme>
```

**Note**

If you enter an incorrect password, the following error message appears:  
Sorry, invalid password.

# disable

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

Once you enter the **enable** command, you are prompted to enter the local, configured, privileged mode password. For information on setting this password, see [enable password, page 2-4](#).

### Syntax Description

No keywords or arguments.

### Defaults

The default password to access the privileged mode is **changeme**.

### Examples

```
bac_dpe> enable
Password: <password2>
bac_dpe#
```

## enable password

Use the **enable password** command to change the local password that allows you to access the DPE in the privileged mode. You can change the privileged mode password only in the privileged mode.

Once the password is changed, all users who, from that point forward, attempt to access the privileged mode must use the new password.



### Note

This command does not change the login password; it only changes the local privileged mode password. You do not use this command when you enable user authentication in the TACACS+ mode, because TACACS+ authentication prompts for the username and password configured at the TACACS+ server. For more information, see [aaa authentication, page 2-2](#).

### Syntax Description

When entering the **enable password** command, you can specify the password on the command line or when prompted.

**enable password** *password*

*password*—Specifies the local configured password currently in effect or, optionally, provides a new password. If you omit this parameter, you are prompted for the password.

### Defaults

The default password to access the privileged mode is **changeme**.

### Examples

This result occurs when you enter the password without being prompted, and the password is changed successfully.

```
bac_dpe# enable password password1
Password changed successfully.
```

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

```
bac_dpe# enable password
New enable password: <password2>
Retype new enable password: <password2>
Password changed successfully.
```

This result occurs when you enter an incorrect password.

```
bac_dpe# enable password
New enable password: <password2>
Retype new enable password: <paswsord2>
Sorry, passwords do not match.
```

## 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 privileged—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.
cpu          Shows the current CPU usage.
device-config Shows a 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 appliance 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 and which is different from the one used to access the privileged mode on 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.

If you enable TACACS+ user authentication, the system prompts for the local system password only if the DPE is unable to communicate with a TACACS+ server.

**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.

**Table 2-1** List of show Commands

Command	Description	
show clock	Displays the current system time and date.	
	Syntax Description	Defaults
	No keywords or arguments.	No default behavior or values.
Example		
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 privileged) in which you access the CLI.	
	Syntax Description	Defaults
	No keywords or arguments.	No default behavior or values.
Examples		
<p>This result occurs in the login mode.</p> <pre>bac_dpe&gt; show commands &gt; enable &gt; exit &gt; help &gt; show bundles &gt; show clock &gt; show commands &gt; show cpu &gt; show disk &gt; show dpe &gt; show dpe config &gt; show hostname &gt; show ip &gt; show ip route &gt; show log &gt; show memory &gt; show running-config &gt; show version &gt; uptime</pre> <p><b>Note</b> The output presented in these examples is trimmed.</p> <p>This result occurs in the privileged mode.</p> <pre>bac_dpe# show commands &gt; aaa authentication local &gt; aaa authentication tacacs &gt; clear bundles &gt; clear cache &gt; clear logs &gt; debug dpe cache &gt; debug dpe connection &gt; debug dpe dpe-server &gt; debug dpe event-manager &gt; debug dpe exceptions &gt; debug dpe framework &gt; debug dpe messaging &gt; debug on &gt; debug service packetcable &lt;1..1&gt; netsnmp &gt; debug service packetcable &lt;1..1&gt; registration &gt; debug service tftp &lt;1..1&gt; &lt;ipv4 ipv6&gt; &gt; disable &gt; dpe docsis shared-secret [0 7] &lt;shared-secret&gt; &gt; dpe port &lt;port&gt; [more]</pre> <p>To view the commands that flow beyond your screen, press <b>Spacebar</b> at the [more] prompt.</p>		

**Table 2-1** *List of show Commands (continued)*

Command	Description	
show cpu	Identifies CPU usage for the device on which the DPE is running. Once you enter the command, CPU activities and statistics appear.	
	Syntax Description	Defaults
	No keywords or arguments.	No default behavior or values.
	When you enter <b>show cpu</b> , the DPE returns per-processor statistics, for the following headers, in tabular form:	
	<b>Note</b> Unless otherwise noted, all values are events per second.	
	<ul style="list-style-type: none"><li>• CPU—Processor ID.</li><li>• minf—Minor faults.</li><li>• mjf—Major faults.</li><li>• xcal—Interprocessor cross-calls.</li><li>• intr—Interrupts.</li><li>• ithr—Interrupts as threads (not counting clock interrupt).</li><li>• csw—Context switches.</li><li>• icsw—Involuntary context switches.</li><li>• migr—Thread migrations (to another processor).</li><li>• smtx—Spins on mutexes.</li><li>• srw—Spins on readers’ or writers’ lock.</li><li>• syscl—System calls.</li><li>• usr—User time (percent).</li><li>• sys—System time (percent).</li><li>• wt—Wait time (percent).</li><li>• idl—Idle time (percent).</li></ul>	
	<b>Example</b>	
	bac_dpe# <b>show cpu</b>	
	CPU minf mjf xcal intr ithr csw icsw migr smtx srw syscl usr sys wt idl	
	0 9 0 31 8 6 38 3 69 24 0 90 1 0 0	
	99	
	1 8 0 14 22 76 60 12 69 16 0 41 1 1 0	
	98	
	CPU minf mjf xcal intr ithr csw icsw migr smtx srw syscl usr sys wt idl	
	0 0 0 314 606 504 351 1 74 32 0 175 0 0 0	
	100	
	1 3 0 2 316 275 492 7 73 24 0 230 0 0 0	
	100	



**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.
	When you enter <b>show disk</b> , the DPE returns values for: <ul style="list-style-type: none"><li>• Filesystem—Indicates path of the file system.</li><li>• kbytes—Indicates size of the file system (Kb).</li><li>• Used—Indicates used disk space (Kb).</li><li>• Avail—Indicates available disk space (Kb).</li><li>• Capacity—Indicates capacity of the disk (percent).</li><li>• Mounted on—Indicates the resources on which the file system is mounted. Resources are usually directories.</li></ul> <b>Example</b> <pre>bac_dpe# show disk Filesystem          kbytes    used    avail  capacity  Mounted on /dev/dsk/c1t0d0s0   4129290  3902964  185034    96%      / /proc                0         0        0         0%      /proc mnttab               0         0        0         0%      /etc/mnttab fd                   0         0        0         0%      /dev/fd /dev/dsk/c1t0d0s4   4129290  571587  3516411   14%      /var swap                 2193480    96  2193384    1%      /var/run swap                 2194104    720  2193384    1%      /tmp /dev/dsk/c1t0d0s6   24685535  5876418  18562262   25%     /scratch /dev/dsk/c1t1d0s2   35009161  34753  34624317    1%     /data</pre>	
show hostname	Displays the hostname configured for the DPE.	
	Syntax Description	Defaults
	No keywords or arguments.	No default behavior or values.
show ip	<b>Example</b> <pre>bac_dpe# show hostname hostname = bac_dpe.example.com</pre>	
	Displays the current general IP settings configured on the DPE. The DPE uses these settings when it reboots.  For specific interface settings, use the <b>show interface</b> commands.	
show ip	Syntax Description	Defaults
	No keywords or arguments.	No default behavior or values.
	<b>Example</b> <pre>bac_dpe# show ip hostname = bac_dpe.example.com domainname = example.com gateway = 10.10.20.10</pre>	

**Table 2-1** *List of show Commands (continued)*

Command	Description																																																							
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.																																																						
When you enter <b>show ip route</b> , the DPE returns the routing table with values for the following headers:																																																								
<ul style="list-style-type: none"><li>• Destination—Indicates the destination network or destination host.</li><li>• Mask—Indicates the subnet mask associated with the route.</li><li>• Gateway—Indicates the address of the outgoing interface.</li><li>• Device—Indicates the network interfaces used for the route.</li><li>• Mxfrg—Indicates the Path Maximum Transfer Unit.</li><li>• Rtt—Indicates the time (in minutes) remaining before the route expires.</li><li>• Ref—Indicates the current number of active uses for the route.</li><li>• Flg—Indicates the state of the route, which could be:<ul style="list-style-type: none"><li>– U—Up</li><li>– H—To a host rather than to a network</li><li>– G—To a gateway</li></ul></li><li>• Out—Identifies the number of packets sent out from this interface or route.</li><li>• In/Fwd—Identifies the number of packets received through this interface or route.</li></ul>																																																								
Example																																																								
bac_dpe# show ip route																																																								
IRE Table: IPv4																																																								
<table><thead><tr><th>Destination</th><th>Mask</th><th>Gateway</th><th>Device</th><th>Mxfrg</th><th>Rtt</th><th>Ref</th><th>Flg</th><th>Out</th><th>In/Fwd</th></tr></thead><tbody><tr><td>10.10.10.4</td><td>255.255.255.128</td><td>10.10.20.10</td><td>eri0</td><td></td><td></td><td>1500*</td><td>0 1 U</td><td>24489</td><td>0</td></tr><tr><td>204.0.1.2</td><td>240.0.0.0</td><td>10.10.10.4</td><td>eri0</td><td>1500*</td><td>0</td><td>1</td><td>U 0 0</td><td></td><td></td></tr><tr><td>default</td><td>0.0.0.0</td><td>10.10.10.2</td><td>1500*</td><td>0</td><td>1</td><td>UG</td><td>128095</td><td>0</td><td></td></tr><tr><td>127.0.0.1</td><td>255.255.255.255</td><td>127.0.0.1</td><td>lo0</td><td>8232*</td><td>164</td><td>14</td><td>UH</td><td>19767884</td><td>0</td></tr></tbody></table>			Destination	Mask	Gateway	Device	Mxfrg	Rtt	Ref	Flg	Out	In/Fwd	10.10.10.4	255.255.255.128	10.10.20.10	eri0			1500*	0 1 U	24489	0	204.0.1.2	240.0.0.0	10.10.10.4	eri0	1500*	0	1	U 0 0			default	0.0.0.0	10.10.10.2	1500*	0	1	UG	128095	0		127.0.0.1	255.255.255.255	127.0.0.1	lo0	8232*	164	14	UH	19767884	0				
Destination	Mask	Gateway	Device	Mxfrg	Rtt	Ref	Flg	Out	In/Fwd																																															
10.10.10.4	255.255.255.128	10.10.20.10	eri0			1500*	0 1 U	24489	0																																															
204.0.1.2	240.0.0.0	10.10.10.4	eri0	1500*	0	1	U 0 0																																																	
default	0.0.0.0	10.10.10.2	1500*	0	1	UG	128095	0																																																
127.0.0.1	255.255.255.255	127.0.0.1	lo0	8232*	164	14	UH	19767884	0																																															
IRE Table: IPv6																																																								
<table><thead><tr><th>Destination/Mask</th><th>Gateway</th><th>If</th><th>PMTU</th><th>Rtt</th><th>Ref</th><th>Flags</th><th>Out</th><th>In/Fwd</th></tr></thead><tbody><tr><td>2001:0DB8:0:0:E000::F</td><td>2001:0DB8:0:0:203:baff:fe12:d5ea</td><td>eri0:1</td><td>1500*</td><td>0</td><td>1</td><td>U</td><td>0</td><td>0</td></tr><tr><td>2001:0DB8:0:0:E020::A</td><td>2001:0DB8:0:0:E020:203:baff:fe12:d5ea</td><td>eri0:2</td><td>1500*</td><td>0</td><td>1</td><td>U 0 0</td><td></td><td></td></tr><tr><td>fe80::/10</td><td>fe80::203:baff:fe12:d5ea</td><td>eri0</td><td>1500*</td><td>0</td><td>1</td><td>U 1</td><td>0</td><td></td></tr><tr><td>default</td><td>fe80::247:7cff:fe6b:7d1c</td><td>eri0</td><td>1500*</td><td>0</td><td>1</td><td>UG</td><td>0</td><td>0</td></tr><tr><td>default</td><td>fe80::2d0:ff:fe48:6400</td><td>eri0</td><td>1500*</td><td>0</td><td>1</td><td>UG</td><td>2</td><td>0</td></tr></tbody></table>			Destination/Mask	Gateway	If	PMTU	Rtt	Ref	Flags	Out	In/Fwd	2001:0DB8:0:0:E000::F	2001:0DB8:0:0:203:baff:fe12:d5ea	eri0:1	1500*	0	1	U	0	0	2001:0DB8:0:0:E020::A	2001:0DB8:0:0:E020:203:baff:fe12:d5ea	eri0:2	1500*	0	1	U 0 0			fe80::/10	fe80::203:baff:fe12:d5ea	eri0	1500*	0	1	U 1	0		default	fe80::247:7cff:fe6b:7d1c	eri0	1500*	0	1	UG	0	0	default	fe80::2d0:ff:fe48:6400	eri0	1500*	0	1	UG	2	0
Destination/Mask	Gateway	If	PMTU	Rtt	Ref	Flags	Out	In/Fwd																																																
2001:0DB8:0:0:E000::F	2001:0DB8:0:0:203:baff:fe12:d5ea	eri0:1	1500*	0	1	U	0	0																																																
2001:0DB8:0:0:E020::A	2001:0DB8:0:0:E020:203:baff:fe12:d5ea	eri0:2	1500*	0	1	U 0 0																																																		
fe80::/10	fe80::203:baff:fe12:d5ea	eri0	1500*	0	1	U 1	0																																																	
default	fe80::247:7cff:fe6b:7d1c	eri0	1500*	0	1	UG	0	0																																																
default	fe80::2d0:ff:fe48:6400	eri0	1500*	0	1	UG	2	0																																																

**Table 2-1** List of *show* Commands (continued)

Command	Description				
<b>show memory</b>	Displays the current memory and swap space that are available on the device running the DPE.				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td>No keywords or arguments.</td><td>No default behavior or values.</td></tr> </table>	Syntax Description	Defaults	No keywords or arguments.	No default behavior or values.
Syntax Description	Defaults				
No keywords or arguments.	No default behavior or values.				
	<p>When you enter <b>show memory</b>, the DPE returns values for:</p> <ul style="list-style-type: none"> <li>• <b>kthr</b>—Indicates the number of kernel threads in r (run queue), b (processes blocked while waiting for I/O), and w (idle processes that have been swapped).</li> <li>• <b>memory</b>—Indicates virtual and real memory usage. The value could be: <ul style="list-style-type: none"> <li>– <b>swap</b>—Free, unreserved swap space (Kb).</li> <li>– <b>free</b>—Free memory (Kb).</li> </ul> </li> <li>• <b>page</b>—Indicates page faults and paging activity (units per second). <ul style="list-style-type: none"> <li>– <b>re</b>—Displays pages reclaimed from the free list.</li> <li>– <b>mf</b>—Displays minor faults.</li> <li>– <b>pi</b>—Displays pages in memory (Kb/s).</li> <li>– <b>po</b>—Displays pages out of memory (Kb/s).</li> <li>– <b>fr</b>—Displays activity of the page scanner that has been freed (Kb/s).</li> <li>– <b>de</b>—Displays pages freed after writes (Kb/s).</li> <li>– <b>sr</b>—Displays the number of pages that have been scanned.</li> </ul> </li> <li>• <b>disk</b>—Indicates the number of disk operations per second. Each S column represents a different disk.</li> <li>• <b>faults</b>—Indicates the trap or interrupt rates (per second) as in (interrupts), sy (system calls), and cs (context switches).</li> <li>• <b>cpu</b>—Indicates CPU usage time, in percent, as us (user time), sy (system time), and id (idle time).</li> </ul> <p><b>Example</b></p> <pre> bac_dpe# show memory kthr      memory          page          disk          faults cpu   r  b  w   swap  free  re  mf  pi  po  fr  de  sr  s6  sd  sd  --   in   sy   cs  us sy id   0  0  0 2511320 1267040 1 17   0   0   0   0   0   0   0   0   0  97  120  80  1 1  98   0  0  0 2156784 1105272 0   4   0   0   0   0   0   0   0   2   0 918  387 800  0 4  96 </pre>				

**Table 2-1** *List of show Commands (continued)*

Command	Description	
<b>show running-config</b>	Displays the current configuration on the DPE.	
	<b>Syntax Description</b>	<b>Defaults</b>
	No keywords or arguments.	No default behavior or values.
<b>Example</b> <pre> bac_dpe# show running-config   aaa authentication tacacs   dpe port 49186   dpe provisioning-group primary default   dpe rdu-server bac_dpe.example.com 49187   dpe shared-secret &lt;value is set&gt;   log level 5-notification   no debug   no debug dpe cache   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 shared-secret   no dpe provisioning-group secondary   no service packetcable 1 snmp key-material   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 &lt;unknown&gt;   snmp-server location &lt;unknown&gt;   snmp-server udp-port 8001   tacacs-server retries 2   tacacs-server timeout 5 </pre>		

**Table 2-1**      **List of show Commands (continued)**

Command	Description	
show tftp files	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 maximum number of files that this command displays is by default 500.
Example	bac_dpe# show tftp files	
	The list of TFTP files currently in DPE cache	
	filenamesize	
	bronze.cm310	
show version	gold.cm310	
	silver.cm310	
	unprov.cm310	
	unprov_11.cm320	
show version	unprov_30.cm264	
	unprov_30v4.cm152	
	unprov_30v6.cm196	
	unprov_packet_cable.bin333	
show version	unprov_wan_man.cfg72	
	DPE caching 10 external files.	
	Listing the first 10 files, 0 files omitted	
	show version	Displays the current version of DPE software.
Syntax Description		Defaults
No keywords or arguments.		No default behavior or values.
Example		
show version	bac_dpe# show version	
	Version: BAC 4.0 (SOL_BAC4_0_0_00000000_0000)	

# 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				
<b>tacacs-server host</b>	<p>Adds a TACACS+ server to the end of the TACACS+ client's list of TACACS+ servers. When you enable TACACS+ authentication, the client attempts user login authentication to each server in the list sequentially until a successful authentication exchange is executed, or the list is exhausted. If the list is exhausted, the client automatically falls into the local authentication mode (using the local system password).</p> <p>Optionally, you can specify an encryption key for each TACACS+ server. If you use an encryption key, it must match the key configured at the specified TACACS+ server. If you omit the encryption key, you disable TACACS+ encryption.</p> <p>To remove a TACACS+ server from the list of TACACS+ servers in the CLI, use the <b>no</b> form of this command. See <a href="#">no tacacs-server host</a>, <a href="#">page 2-17</a>.</p> <table border="1"> <thead> <tr> <th>Syntax Description</th><th>Defaults</th></tr> </thead> <tbody> <tr> <td> <b>tacacs-server host</b> <i>host</i> [<i>key encryption-key</i>]  <ul style="list-style-type: none"> <li><i>host</i>—Specifies the IP address or the hostname of the TACACS+ server.</li> <li><i>encryption-key</i>—Identifies the encryption key (optional).</li> </ul> </td><td>No default behavior or values.</td></tr> </tbody> </table> <p><b>Examples</b></p> <p>This result occurs when you add a TACACS+ server using its IP address (10.0.1.1) without encryption.</p> <pre> bac_dpe# tacacs-server host 10.0.1.1 % OK </pre> <p>This result occurs when you add a TACACS+ server using its IP address (10.0.1.1) and an encryption key (hg667YHHj).</p> <pre> bac_dpe# tacacs-server host 10.0.1.1 key hg667YHHj % OK </pre> <p>This result occurs when you add a TACACS+ server using its hostname (tacacs1.cisco.com) without encryption.</p> <pre> bac_dpe# tacacs-server host tacacs1.example.com % OK </pre> <p>This result occurs when you add a TACACS+ server using its hostname (tacacs1.cisco.com) and an encryption key (hg667YHHj).</p> <pre> bac_dpe# tacacs-server host tacacs1.example.com key hg667YHHj % OK </pre>	Syntax Description	Defaults	<b>tacacs-server host</b> <i>host</i> [ <i>key encryption-key</i> ] <ul style="list-style-type: none"> <li><i>host</i>—Specifies the IP address or the hostname of the TACACS+ server.</li> <li><i>encryption-key</i>—Identifies the encryption key (optional).</li> </ul>	No default behavior or values.
Syntax Description	Defaults				
<b>tacacs-server host</b> <i>host</i> [ <i>key encryption-key</i> ] <ul style="list-style-type: none"> <li><i>host</i>—Specifies the IP address or the hostname of the TACACS+ server.</li> <li><i>encryption-key</i>—Identifies the encryption key (optional).</li> </ul>	No default behavior or values.				

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

Command	Description	
no tacacs-server host	Removes a TACACS+ server from the list of TACACS+ servers in the CLI. To add a TACACS+ server, see <a href="#">tacacs-server host, page 2-16</a> .	
	<b>Syntax Description</b>  <b>no tacacs-server host</b> <i>host</i>  <i>host</i> —Specifies either the IP address or the hostname of the TACACS+ server.	<b>Defaults</b>  No default behavior or values.
	<b>Examples</b>  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 or, if the TACACS+ list has been exhausted, falls back into local authentication mode.	
	<b>Syntax Description</b>  <b>tacacs-server retries</b> <i>value</i>  <i>value</i> —Specifies a dimensionless number from 1 to 100. This value applies to all TACACS+ servers.	<b>Defaults</b>  The maximum number of times that the TACACS+ exchange is tried before the client considers the TACACS+ server unreachable is by default 2.
	<b>Example</b>  bac_dpe# tacacs-server retries 10 % OK	

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

Command	Description	
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.	
	<b>Syntax Description</b>  <b>tacacs-server timeout</b> <i>value</i>  <i>value</i> —Specifies the length of time that the CLI waits for a TACACS+ server response. This value must be from 1 to 300 seconds, and applies to all TACACS+ servers.	<b>Defaults</b>  The maximum length of time that the CLI waits for a TACACS+ server response before it times out is by default 5 seconds.
	<b>Example</b>  bac_dpe# <b>tacacs-server timeout 10</b> % 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
```





# CHAPTER 3

## DPE Configuration Commands

This chapter describes the command-line interface (CLI) commands that you can use to manage and monitor the Cisco Broadband Access Center (BAC) Device Provisioning Engine (DPE).

The commands described in this chapter are:

Command	Description	CLI Mode	
		Login	Privileged
<code>clear cache</code>	Erases the DPE cache and resets the server to a clean state.		✓
<code>dpe docsis shared-secret</code>	Set a DOCSIS shared secret on the DPE.		✓
<code>dpe port</code>	Sets the port number that the DPE uses to communicate with Cisco Network Registrar extensions.		✓
<code>dpe provisioning-group primary</code>	Sets the DPE in a specific primary provisioning group.		✓
<code>dpe provisioning-group secondary</code>	Sets secondary provisioning groups for the DPE.		✓
<code>dpe rdu-server port</code>	Specifies the RDU port to connect to.		✓
<code>dpe rdu-server source ip</code>	Configures the DPE source interface to connect to the RDU.		✓
<code>dpe rdu-server source port</code>	Configures the DPE source port to connect to the RDU.		✓
<code>dpe reload</code>	Restarts the DPE.		✓
<code>dpe shared-secret</code>	Sets the shared secret used in communications with the RDU.		✓
<code>dpe start   stop</code>	Starts or stops the DPE.		✓
<code>interface ip pg-communication</code>	Configures an interface to communicate with Cisco Network Registrar extensions.		✓
<code>interface ip provisioning</code>	Configures an interface to handle provisioning requests.		✓
<code>interface ip provisioning fqdn</code>	Sets the fully qualified domain name for a specific interface.		✓

Command	Description	CLI Mode	
		Login	Privileged
<code>service tftp allow-read-access</code>	Enables TFTP read requests from the file system.		✓
<code>service tftp ipv4   ipv6 blocksize</code>	Enables or disables the blocksize option for the TFTP service for IPv4 or IPv6.		✓
<code>service tftp ipv4   ipv6 enabled</code>	Enables or disables the TFTP service for IPv4 or IPv6.		✓
<code>service tftp ipv4   ipv6 verify-ip</code>	Enables the verification of requestor IP addresses on dynamic configuration TFTP requests.		✓
<code>service tod</code>	Enables or disables the ToD service for IPv4 or IPv6.		✓
<code>show device-config</code>	Displays a device configuration that is cached at the DPE.		✓
<code>show dpe</code>	Displays the state of the DPE process and, if running, its operational statistics.	✓	✓
<code>show dpe config</code>	Displays the current settings on the DPE.	✓	✓

## clear cache

Use the **clear cache** command to erase the DPE cache and reset the server to a clean state. When the DPE is restarted, it connects to the RDU and rebuilds the cache from the information stored in the RDU database.



### Note

Before erasing the DPE cache, ensure that you stop the DPE by running the **dpe stop** command. For more information, see [dpe start | stop, page 3-11](#).

You should clear the cache only when the DPE encounters a major problem. Running this command forces the DPE to rebuild or repopulate its device cache. This process may take an extended period of time to complete.

Once the command is entered, the DPE cache is cleared and a prompt appears to indicate the amount of disk space cleared as a result. If the cache could not be cleared, the reason for the failure appears.

### Syntax Description

No keywords or arguments.

### Defaults

No default behavior or values.

**Examples**

This result occurs when the cache is successfully cleared.

```
bac_dpe# clear cache
Clearing DPE cache...
+ 820224 bytes cleared.
```

This result occurs when the cache has already been cleared.

```
bac_dpe# clear cache
Clearing DPE cache...
+ Cache already cleared.
```

This result occurs when the DPE has not been stopped.

```
bac_dpe# clear cache
DPE must be stopped before clearing cache.
```

## dpe docsis shared-secret

Use the **dpe docsis shared-secret** command to set a DOCSIS shared secret (DSS) on the DPE. The DSS is used to calculate the message integrity check of cable modems and the cable modem termination system (CMTS).

**Note**

While setting or changing the DSS, we recommend that you use a secure connection.

To disable the DSS, use the **no** form of this command.

**Syntax Description**

**dpe docsis shared-secret** *type secret*

- *type*—Identifies whether the shared secret string appears as clear text or as encrypted text.  
To specify the format, enter:
  - 0 for a clear text string. This string is the default setting.
  - 7 for a Cisco IOS-encrypted shared-secret text string.
- *secret*—Identifies the secret string. You must enter a value from 2 to 80 characters.

If, after running this command, you use the **show running-config** command, a new line appears identifying the shared secret and its type.

**Defaults**

The DSS is by default not configured on the DPE.

**Examples**

```
bac_dpe# dpe docsis shared-secret 0 changeme
% OK (Warning: Current input accepted. Note a secure connection is recommended to set or
change the DOCSIS Shared Secret.)
```

## no dpe docsis shared-secret

Use the **no dpe docsis shared-secret** command to disable the DOCSIS shared secret (DSS) configured on the DPE.

To enable the DSS, see [dpe docsis shared-secret, page 3-3](#).

---

**Syntax Description** No keywords or arguments.

---

**Defaults** The DSS is by default not configured on the DPE.

---

**Examples**

```

bac_dpe# no dpe docsis shared-secret
% OK

```

## dpe port

Use the **dpe port** command to specify the port number that the DPE uses to communicate with the Network Registrar extension points. You can leave this port number intact unless there is a need to change it for firewall reasons.



**Note**

You must stop the DPE before changing the port number. If you attempt to run this command on an operational DPE, the following error message appears:

```
ERROR: DPE must be stopped before changing the port number.
```

The changes that you introduce through this command do not take effect until you restart the DPE. For information on stopping and starting the DPE, see [dpe start | stop, page 3-11](#).

---

**Syntax Description** **dpe port** *port*

*port*—Identifies the port number assigned for connecting to the DPE.

---

**Defaults** The default port that the DPE uses is 49186.

---

**Examples**

```

bac_dpe# dpe port 49186
% OK

```

# dpe provisioning-group primary

Use the **dpe provisioning-group primary** command to specify the DPE as a member of a specified primary provisioning group. Most DPEs are configured with one primary provisioning group; however, selecting multiple provisioning groups allows multiple DHCP servers to use this DPE.



## Note

If you enable PacketCable voice technology, ensure that a DPE belongs to only one provisioning group.

When assigning new provisioning groups that have a large number of devices, restarting the DPE can take an extended period of time depending on the number of devices in your network and the size of the device configurations. This delay occurs because the cache for each provisioning group has to be synchronized or, for new provisioning groups, completely rebuilt.



## Note

Typically, you must change the provisioning groups only when the DPE is first deployed on the network.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To remove any configured primary provisioning groups, use the **no** form of this command. See [no dpe provisioning-group primary, page 3-6](#).

## Syntax Description

**dpe provisioning-group primary** *name* [*name*\*

- *name*—Identifies the assigned primary provisioning group.
- *name*\*—Allows the entry of multiple provisioning groups. When specifying multiple provisioning groups, you must insert a space between their names.

## Defaults

The default primary provisioning group is the provisioning group that you configure as the default. You can use any name to identify the primary provisioning group. By default, however, the primary provisioning group is identified as 'default'.

## Examples

This result occurs when you specify a single primary provisioning group.

```
bac_dpe# dpe provisioning-group primary PrimaryProvGroup
% OK (Requires DPE restart "> dpe reload")
```

This result occurs when you specify multiple primary provisioning groups.

```
bac_dpe# dpe provisioning-group primary provisioning-grp-1 provisioning-grp-2
% OK (Requires DPE restart "> dpe reload")
```

## no dpe provisioning-group primary

Use the **no dpe provisioning-group primary** command to clear configured primary provisioning groups. If primary provisioning groups are not available, you can use the DPE as a backup for other provisioning groups or as a TFTP file cache.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To specify the DPE as a member of a specified primary provisioning group, see [dpe provisioning-group primary, page 3-5](#).

### Syntax Description

No keywords or arguments.

### Defaults

No default behavior or values.

### Examples

```

bac_dpe# no dpe provisioning-group primary
% OK (Requires DPE restart "> dpe reload")

```

## dpe provisioning-group secondary

Use the **dpe provisioning-group secondary** command to set secondary provisioning groups for the DPE server to use. Most DPEs are configured with a primary provisioning group; however, selecting multiple provisioning groups allows multiple DHCP servers to use this DPE.



### Note

Secondary provisioning groups are used for provisioning only when the primary provisioning groups are not available or are overloaded.

When assigning new provisioning groups that have a large number of devices, restarting the DPE can take an extended period of time depending on the number of devices in your network and the size of the device configurations. This delay occurs because the cache for each provisioning group has to be synchronized or, for new provisioning groups, completely rebuilt.



### Note

Typically, you must change the provisioning groups only when the DPE is first deployed on the network.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To remove any configured secondary provisioning groups, use the **no** form of this command. See [no dpe provisioning-group secondary, page 3-7](#).

---

**Syntax Description****dpe provisioning-group secondary** *name* [*name*\*]

- *name*—Identifies the assigned secondary provisioning group.
- *name*\*—Allows the entry of multiple provisioning groups. When specifying multiple provisioning groups, you must insert a space between their names.

---

**Defaults**

No default behavior or values.

---

**Examples**

This result occurs when you specify a single secondary provisioning group.

```
bac_dpe# dpe provisioning-group secondary SecondaryProvGroup
% OK (Requires DPE restart "> dpe reload")
```

This result occurs when you specify multiple secondary provisioning groups.

```
bac_dpe# dpe provisioning-group primary provisioning-second-1 provisioning-second-2
% OK (Requires DPE restart "> dpe reload")
```

## no dpe provisioning-group secondary

Use the **no dpe provisioning-group secondary** command to clear configured secondary provisioning groups. If secondary provisioning groups are not available, the DPE can be used as a primary in other provisioning groups.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To set secondary provisioning groups for the DPE, see [dpe provisioning-group secondary, page 3-6](#).

---

**Syntax Description**

No keywords or arguments.

---

**Defaults**

No default behavior or values.

---

**Examples**

```
bac_dpe# no dpe provisioning-group secondary
% OK (Requires DPE restart "> dpe reload")
```

# dpe rdu-server

Use the **dpe rdu-server** command to configure the DPE to connect to the RDU server. [Table 3-1](#) lists the keywords that you can use with this command.

**Table 3-1** List of dpe rdu-server Commands

Command	Description				
<b>dpe rdu-server port</b>	<p>Identifies the RDU to which the DPE connects. Normally, you configure the RDU on the default port, but for security reasons, you could configure it to run on a nondefault port.</p> <p>After you use this command, run the <b>dpe reload</b> command so that the changes take effect. See <a href="#">dpe reload, page 3-10</a>.</p> <table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>dpe rdu-server</b> {<i>host</i>   <i>x.x.x.x</i>} <i>port</i> <ul style="list-style-type: none"> <li><i>host</i>—Identifies the fully qualified domain name (FQDN) of the RDU host.</li> <li><i>x.x.x.x</i>—Identifies the IP address of the RDU host.</li> <li><i>port</i>—Identifies the port number on which the RDU is listening for DPE connections.</li> </ul> </td><td>                     The default port on which the RDU listens for the DPE is 49187.                 </td></tr> </table> <p><b>Examples</b></p> <p>This result occurs when you specify the RDU host:</p> <ul style="list-style-type: none"> <li>Using its FQDN.                         <pre> bac_dpe# dpe rdu-server rdu.example.com 49187 % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> <li>Using its IP address.                         <pre> bac_dpe# dpe rdu-server 10.10.20.1 49187 % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> </ul>	Syntax Description	Defaults	<b>dpe rdu-server</b> { <i>host</i>   <i>x.x.x.x</i> } <i>port</i> <ul style="list-style-type: none"> <li><i>host</i>—Identifies the fully qualified domain name (FQDN) of the RDU host.</li> <li><i>x.x.x.x</i>—Identifies the IP address of the RDU host.</li> <li><i>port</i>—Identifies the port number on which the RDU is listening for DPE connections.</li> </ul>	The default port on which the RDU listens for the DPE is 49187.
Syntax Description	Defaults				
<b>dpe rdu-server</b> { <i>host</i>   <i>x.x.x.x</i> } <i>port</i> <ul style="list-style-type: none"> <li><i>host</i>—Identifies the fully qualified domain name (FQDN) of the RDU host.</li> <li><i>x.x.x.x</i>—Identifies the IP address of the RDU host.</li> <li><i>port</i>—Identifies the port number on which the RDU is listening for DPE connections.</li> </ul>	The default port on which the RDU listens for the DPE is 49187.				



Table 3-1 List of dpe rdu-server Commands (continued)

Command	Description				
<b>dpe rdu-server source ip</b>	Configures the DPE to use the specified interface as its source when connecting to the RDU. If you do not specify an interface, the DPE allows the operating system to determine the interface to use while communicating with the RDU server.				
<b>no dpe rdu-server source ip</b>	<p><b>Note</b> While using this command, you can specify IP addresses only in the IPv4 format.</p> <p>After you use this command, run the <b>dpe reload</b> command so that the changes take effect. See <a href="#">dpe reload</a>, page 3-10.</p> <p>To clear the configured interface, use the <b>no</b> form of this command. When clearing the configured interface, you need not specify the IP address of the interface.</p>				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>dpe rdu-server source ip ip_address [?]</b> <ul style="list-style-type: none"> <li><i>ip_address</i>—Identifies the IP address of a specific DPE interface, in the IPv4 addressing format.</li> <li><b>?</b>—Dynamically determines and displays the available IP addresses. This parameter is optional. When you use this option, you need not specify an IP address.</li> </ul> </td><td>No default behavior or values.</td></tr> </table>	Syntax Description	Defaults	<b>dpe rdu-server source ip ip_address [?]</b> <ul style="list-style-type: none"> <li><i>ip_address</i>—Identifies the IP address of a specific DPE interface, in the IPv4 addressing format.</li> <li><b>?</b>—Dynamically determines and displays the available IP addresses. This parameter is optional. When you use this option, you need not specify an IP address.</li> </ul>	No default behavior or values.
Syntax Description	Defaults				
<b>dpe rdu-server source ip ip_address [?]</b> <ul style="list-style-type: none"> <li><i>ip_address</i>—Identifies the IP address of a specific DPE interface, in the IPv4 addressing format.</li> <li><b>?</b>—Dynamically determines and displays the available IP addresses. This parameter is optional. When you use this option, you need not specify an IP address.</li> </ul>	No default behavior or values.				
	<p><b>Examples</b></p> <p>This result occurs when you configure the DPE interface.</p> <ul style="list-style-type: none"> <li>Using its IP address <pre> bac_dpe# dpe rdu-server source ip 10.10.1.2 % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> <li>Without specifying its IP address <pre> bac_dpe# dpe rdu-server source ip % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> <li>Using the ? option <pre> bac_dpe# dpe rdu-server source ip ? &lt;ip address&gt;  [10.10.1.2] &lt;cr&gt; </pre> </li> </ul> <p>This result occurs when you clear the configured DPE interface.</p> <pre> bac_dpe# no dpe rdu-server source ip % OK (Requires DPE restart "&gt; dpe reload") </pre>				

**Table 3-1** List of dpe rdu-server Commands (continued)

Command	Description				
<b>dpe rdu-server source port</b>	Configures the DPE to use the specified port as the source port when connecting to the RDU. If you do not specify the port, the DPE allows the operating system to determine the port to use while communicating with the RDU.				
<b>no dpe rdu-server source port</b>	<p>After you use this command, run the <b>dpe reload</b> command so that the changes take effect. See <a href="#">dpe reload, page 3-10</a>.</p> <p>To clear the configured port, use the <b>no</b> form of this command. When clearing the configured port, you need not specify the port number.</p>				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>dpe rdu-server source port port</b>  <i>port</i>—Identifies the number of the DPE source port.  <b>Note</b> If the port you specify is not available, an error message appears. </td><td>No default behavior or values.</td></tr> </table>	Syntax Description	Defaults	<b>dpe rdu-server source port port</b> <i>port</i> —Identifies the number of the DPE source port. <b>Note</b> If the port you specify is not available, an error message appears.	No default behavior or values.
Syntax Description	Defaults				
<b>dpe rdu-server source port port</b> <i>port</i> —Identifies the number of the DPE source port. <b>Note</b> If the port you specify is not available, an error message appears.	No default behavior or values.				
	<p><b>Examples</b></p> <p>This result occurs when you configure a port to communicate with the RDU.</p> <pre> bac_dpe# dpe rdu-server source port 49186 % OK (Requires DPE restart "&gt; dpe reload") </pre> <p>This result occurs when you clear the configured port through which the DPE communicates with the RDU.</p> <pre> bac_dpe# no dpe rdu-server source port % OK (Requires DPE restart "&gt; dpe reload") </pre>				

# dpe reload

Use the **reload** command to restart the DPE, which must be operational before you reload it. If the DPE does not stop within 60 seconds, the BAC process watchdog (bprAgent) forces the DPE to stop, and an alert message, indicating that the DPE has been stopped, appears. Once the message appears, the DPE restarts.

**Syntax Description** No keywords or arguments.

**Defaults** No default behavior or values.

**Examples**

```

bac_dpe# dpe reload
Process [dpe] has been restarted.

```

## dpe shared-secret

Use the **dpe shared-secret** command to set the shared secret used for communications with the RDU. Communication fails if the shared secret, which is set on the two servers, is not the same.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload](#), page 3-10.

---

### Syntax Description

**dpe shared-secret** *secret*

*secret*—Identifies the RDU shared secret.

---

### Defaults

No default behavior or values.

---

### Examples

```
bac_dpe# dpe shared-secret private
% OK (Requires DPE restart "> dpe reload")
```

## dpe start | stop

Use the **dpe start | stop** command to start or stop the DPE.

---

### Syntax Description

**dpe start | stop**

- **start**—Starts the DPE. You can use this command only when the DPE is not running. Having the DPE start successfully does not guarantee that the DPE will run successfully. Check the DPE log to ensure that the DPE has started correctly. Also, check the log periodically to ensure that no additional errors have occurred.
- **stop**—Stops the DPE. You can use this command only when the DPE is running. If the DPE has not stopped within 60 seconds, the DPE process watchdog (bprAgent) forces the DPE to stop, and an alert message, indicating that the DPE has been stopped, appears.

---

### Defaults

No default behavior or values.

---

### Examples

This result occurs when the DPE is started.

```
bac_dpe# dpe start
Process [dpe] has been started
```

This result occurs if the DPE is started when it is already operational.

```
bac_dpe# dpe start
Process [dpe] is already running
```

This result occurs when the DPE is stopped.

```
bac_dpe# dpe stop
Process [dpe] has been stopped.
```

## interface ip pg-communication

Use the **interface ip pg-communication** command to configure the DPE to use the specified interface, identified by its IP address, when communicating with Network Registrar extensions.



### Note

You can configure only IPv4 interfaces for communication with Network Registrar extensions.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To clear the configured interface, use the **no** form of this command. See [no interface ip pg-communication, page 3-12](#).

### Syntax Description

**interface ip *ipv4\_address* pg-communication**

*ipv4\_address*—Identifies the IPv4 address of a specific DPE interface.

### Defaults

No default behavior or values.

### Examples

```
bac_dpe# interface ip 10.10.1.20 pg-communication
% OK (Requires DPE restart "> dpe reload")
```

## no interface ip pg-communication

Use the **no interface ip pg-communication** command to disable the interface configured on the DPE when communicating with Network Registrar extensions.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To configure a DPE interface, see [interface ip pg-communication, page 3-12](#).

### Syntax Description

**no interface ip *ipv4\_address* pg-communication**

*ipv4\_address*—Identifies the IPv4 address of a specific DPE interface.

### Defaults

No default behavior or values.

### Examples

```
bac_dpe# no interface ip 10.10.1.20 pg-communication
```

% OK (Requires DPE restart "> dpe reload")

## interface ip provisioning

Use the **interface ip provisioning** command to configure the specified interface, identified by its IP address, to handle provisioning requests. Only interfaces that have provisioning enabled are used for communication with devices and the DHCP server.

If you do not specify an interface for communication with Network Registrar extensions, the extensions communicate with the DPE via the interface on which provisioning is enabled. If you configure an interface to communicate with the extensions (using the **interface ip pg-communication** command), the extensions communicate with the DPE via the interface you specify. Using this configuration, you can enable the use of split-networking techniques to isolate devices facing communication from management communications.



### Note

If you are using IPv6, you must configure an interface to communicate with Network Registrar extensions. Otherwise, the DPE fails to communicate with the extensions.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload](#), page 3-10.

To disable the configured interface, use the **no** form of this command. See [no interface ip provisioning](#), page 3-14.

### Syntax Description

**interface ip *ip\_address* provisioning [?]**

- *ip\_address*—Specifies the IP address of the interface in the IPv4 or the IPv6 format.
- ?—Dynamically determines and displays the available interfaces by their IP addresses. This parameter is optional. When you use this option, you need not specify an IP address.

The IP addresses that appear when you use the ? option do not change after you install the CLI. If you want to change the provisioning IP address, manually remove the existing IP address and configure a new IP address in the following manner:

1. Delete the existing IP address, using the **no interface ip *ip\_address* provisioning** command.
2. Shut down the CLI process, using the **/etc/init.d/bprAgent stop cli** command.
3. Change the IP address on the network card.
4. Start the CLI process again, using the **/etc/init.d/bprAgent start cli** command.
5. Add the new IP address from the DPE command line, using the **interface ip provisioning** command.
6. Reload the DPE, using the **dpe reload** command.

### Defaults

No default behavior or values.

**Examples**

This result occurs when you configure an interface by specifying its IPv4 address.

```
bac_dpe# interface ip 10.10.10.133 provisioning
% OK (Requires DPE restart "> dpe reload")
```

This result occurs when you configure an interface by specifying its IPv6 address.

```
bac_dpe# interface ip 2001:0DB8:0:0:203:baff:fe12:d5ea provisioning
% OK (Requires DPE restart "> dpe reload")
```

This result occurs when you use the ? option.

```
bac_dpe# interface ip ?
  10.10.10.133          eri0 [3]
  2001:0DB8:0:0:203:baff:fe12:d5ea  eri0 [1]
  2001:0DB8:0:1:203:baff:fe12:d5ea  eri0
  fe80:0:0:0:203:baff:fe12:d5ea    eri0 [2]
```

## no interface ip provisioning

Use the **no interface ip provisioning** command to disable provisioning via the specified interface.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload](#), page 3-10.

To enable an interface, see [interface ip provisioning](#), page 3-13.

**Syntax Description**

**no interface ip *ip\_address* provisioning [?]**

- *ip\_address*—Specifies the IPv4 or IPv6 address of the interface.
- **?**—Dynamically determines and displays the available interfaces by their IP addresses. This parameter is optional. When you use this option, you need not specify an IP address.

**Defaults**

No default behavior or values.

**Examples**

This result occurs when you disable an interface by specifying its IPv4 address.

```
bac_dpe# no interface ip 10.10.10.133 provisioning
% OK (Requires DPE restart "> dpe reload")
```

This result occurs when you disable an interface by specifying its IPv6 address.

```
bac_dpe# no interface ip 2001:0DB8:0:0:203:baff:fe12:d5ea provisioning
% OK (Requires DPE restart "> dpe reload")
```

This result occurs when you use the ? option.

```
bac_dpe# no interface ip ?
  10.10.10.133          eri0 [3]
  2001:0DB8:0:0:203:baff:fe12:d5ea  eri0 [1]
  2001:0DB8:0:1:203:baff:fe12:d5ea  eri0
  fe80:0:0:0:203:baff:fe12:d5ea    eri0 [2]
```

## interface ip provisioning fqdn

Use the **interface ip provisioning fqdn** command to set the fully qualified domain name (FQDN) for a specific interface. The provisioning FQDN is the domain name that is given to devices to contact the specific DPE interface.



### Note

Before setting the FQDN for an interface, ensure that provisioning is enabled on that interface. To enable provisioning on an interface, see [interface ip provisioning, page 3-13](#).

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To clear the configured FQDN, use the **no** form of this command. See [no interface ip provisioning fqdn, page 3-15](#).

### Syntax Description

**interface ip *ip\_address* provisioning fqdn *fqdn***

- *ip\_address*—Identifies the interface on the DPE.
- *fqdn*—Identifies the FQDN that is set on the specified interface. This FQDN is sent as the SNMP Entity in DHCP option 177, suboption 3.

### Defaults

No default behavior or values.

### Examples

This result occurs when you set the FQDN of an IPv4 interface.

```
bac_dpe# interface ip 10.10.1.2 provisioning fqdn dpe.example.com
% OK (Requires DPE restart "> dpe reload")
```

This result occurs when you set the FQDN of an IPv6 interface.

```
bac_dpe# interface ip 2001:0DB8:0:0:203:baff:fe12:d5ea provisioning fqdn dpe.example.com
% OK (Requires DPE restart "> dpe reload")
```

## no interface ip provisioning fqdn

Use the **no interface ip provisioning fqdn** command to clear the fully qualified domain name (FQDN) for a specific interface. The provisioning FQDN is the domain name that is given to devices to contact the specific DPE interface.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To set the FQDN for an interface, see [interface ip provisioning fqdn, page 3-15](#).

**Syntax Description** **no interface ip** *ip\_address* **provisioning fqdn** *fqdn*

- ip\_address*—Identifies the interface on the DPE.
- fqdn*—Identifies the FQDN that is set on the specified interface. This FQDN is sent as the SNMP Entity in DHCP option 177, suboption 3.

**Defaults** No default behavior or values.

**Examples** This result occurs when you clear the FQDN of an interface by specifying its IPv4 address.

```

bac_dpe# no interface ip 10.10.1.2 provisioning fqdn dpe.example.com
% OK (Requires DPE restart "> dpe reload")

```

This result occurs when you clear the FQDN of an interface by specifying its IPv6 address.

```

bac_dpe# no interface ip 2001:0DB8:0:0:203:baff:fe12:d5ea provisioning fqdn
dpe.example.com
% OK (Requires DPE restart "> dpe reload")

```

# service tftp

Use the **service tftp** command to configure settings related to TFTP. [Table 3-2](#) lists the keywords that you can use with this command.

The TFTP service on the DPE features one instance of the service, which you can configure to suit your requirements.

**Table 3-2** List of service tftp Commands

Command	Description				
<b>service tftp allow-read-access</b>	Enables TFTP read requests from the file system. When you enable this command, the DPE looks for the required file in the local directory; it does not search the DPE cache.				
<b>no service tftp allow-read-access</b>	To disable TFTP read requests from the file system, use the <b>no</b> form of this command.				
<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>service tftp</b> <i>1..1</i> <b>allow-read-access</b>  <i>1..1</i>—Identifies the instance of the TFTP service. </td><td>TFTP read requests are by default disabled.</td></tr> </table>		Syntax Description	Defaults	<b>service tftp</b> <i>1..1</i> <b>allow-read-access</b> <i>1..1</i> —Identifies the instance of the TFTP service.	TFTP read requests are by default disabled.
Syntax Description	Defaults				
<b>service tftp</b> <i>1..1</i> <b>allow-read-access</b> <i>1..1</i> —Identifies the instance of the TFTP service.	TFTP read requests are by default disabled.				
<b>Examples</b> This result occurs when you enable read requests from the file system. <pre> bac_dpe# service tftp 1 allow-read-access % OK </pre> This result occurs when you disable read requests from the file system. <pre> bac_dpe# no service tftp 1 allow-read-access % OK </pre>					



Table 3-2 List of service tftp Commands (continued)

Command	Description				
<b>service tftp ipv4   ipv6 blocksize</b>  <b>no service tftp ipv4   ipv6 blocksize</b>	<p>Enables or disables the blocksize option for TFTP transfers using IPv4 or IPv6. The blocksize option specifies the number of data octets and allows the client and server to negotiate a block size more applicable to the network medium.</p> <p>When you enable blocksize, the TFTP service uses the requested block size for the transfer if it is within the specified lower and upper limits. If you disable blocksize, the TFTP service ignores the client request and an appropriate message is logged in the DPE log file.</p> <p>To disable the blocksize option for the TFTP service, use the <b>no</b> form of this command.</p>				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>service tftp 1..1 ipv4   ipv6 blocksize lower upper</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables blocksize for IPv4.</li> <li><b>ipv6</b>—Enables blocksize for IPv6.</li> <li><b>lower</b>—Specifies, in octets, the lower limit for the file transfer. If the transfer is lower than the limit specified, the option is ignored.</li> <li><b>upper</b>—Specifies, in octets, the upper limit for the file transfer. If the transfer is higher than the limit specified, the option is ignored.</li> </ul> </td><td> <p>The blocksize option is by default:</p> <ul style="list-style-type: none"> <li>Disabled for IPv4. If enabled, the default lower and upper limits are 512 and 1428, respectively.</li> <li>Enabled for IPv6. The default lower and upper limits are 1448.</li> </ul> </td></tr> </table>	Syntax Description	Defaults	<b>service tftp 1..1 ipv4   ipv6 blocksize lower upper</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables blocksize for IPv4.</li> <li><b>ipv6</b>—Enables blocksize for IPv6.</li> <li><b>lower</b>—Specifies, in octets, the lower limit for the file transfer. If the transfer is lower than the limit specified, the option is ignored.</li> <li><b>upper</b>—Specifies, in octets, the upper limit for the file transfer. If the transfer is higher than the limit specified, the option is ignored.</li> </ul>	<p>The blocksize option is by default:</p> <ul style="list-style-type: none"> <li>Disabled for IPv4. If enabled, the default lower and upper limits are 512 and 1428, respectively.</li> <li>Enabled for IPv6. The default lower and upper limits are 1448.</li> </ul>
Syntax Description	Defaults				
<b>service tftp 1..1 ipv4   ipv6 blocksize lower upper</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables blocksize for IPv4.</li> <li><b>ipv6</b>—Enables blocksize for IPv6.</li> <li><b>lower</b>—Specifies, in octets, the lower limit for the file transfer. If the transfer is lower than the limit specified, the option is ignored.</li> <li><b>upper</b>—Specifies, in octets, the upper limit for the file transfer. If the transfer is higher than the limit specified, the option is ignored.</li> </ul>	<p>The blocksize option is by default:</p> <ul style="list-style-type: none"> <li>Disabled for IPv4. If enabled, the default lower and upper limits are 512 and 1428, respectively.</li> <li>Enabled for IPv6. The default lower and upper limits are 1448.</li> </ul>				
	<p><b>Examples</b></p> <p>This result occurs when you enable blocksize for TFTP transfers.</p> <ul style="list-style-type: none"> <li>Using IPv4 <pre> bac_dpe# service tftp 1 ipv4 blocksize 512 1428 % OK </pre> </li> <li>Using IPv6 <pre> bac_dpe# service tftp 1 ipv6 blocksize 1428 1448 % OK </pre> </li> </ul> <p>This result occurs when you disable blocksize for TFTP transfers.</p> <ul style="list-style-type: none"> <li>Using IPv4 <pre> bac_dpe# no service tftp 1 ipv4 blocksize % OK </pre> </li> <li>Using IPv6 <pre> bac_dpe# no service tftp 1 ipv6 blocksize % OK </pre> </li> </ul>				

Table 3-2 List of service tftp Commands (continued)

Command	Description				
<b>service tftp ipv4   ipv6 enabled</b>	<p>Enables or disables the TFTP service for IPv4 or IPv6.</p> <p>After you use this command, run the <b>dpe reload</b> command so that the changes take effect. See <a href="#">dpe reload, page 3-10</a>.</p> <p><b>Note</b> If the well-known TFTP port (port number 69) is not available, an error message appears.</p>				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>service tftp 1..1 ipv4   ipv6 enabled true   false</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables the TFTP service for IPv4.</li> <li><b>ipv6</b>—Enables the TFTP service for IPv6.</li> <li><b>true</b>—Enables the TFTP service for IPv4 or IPv6.</li> <li><b>false</b>—Disables the TFTP service for IPv4 or IPv6.</li> </ul> </td><td> <p>The TFTP service is by default disabled.</p> </td></tr> </table>	Syntax Description	Defaults	<b>service tftp 1..1 ipv4   ipv6 enabled true   false</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables the TFTP service for IPv4.</li> <li><b>ipv6</b>—Enables the TFTP service for IPv6.</li> <li><b>true</b>—Enables the TFTP service for IPv4 or IPv6.</li> <li><b>false</b>—Disables the TFTP service for IPv4 or IPv6.</li> </ul>	<p>The TFTP service is by default disabled.</p>
Syntax Description	Defaults				
<b>service tftp 1..1 ipv4   ipv6 enabled true   false</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables the TFTP service for IPv4.</li> <li><b>ipv6</b>—Enables the TFTP service for IPv6.</li> <li><b>true</b>—Enables the TFTP service for IPv4 or IPv6.</li> <li><b>false</b>—Disables the TFTP service for IPv4 or IPv6.</li> </ul>	<p>The TFTP service is by default disabled.</p>				
	<p><b>Examples</b></p> <p>This result occurs when you enable the TFTP service.</p> <ul style="list-style-type: none"> <li>For IPv4 <pre> bac_dpe# service tftp 1 ipv4 enabled true % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> <li>For IPv6 <pre> bac_dpe# service tftp 1 ipv6 enabled true % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> </ul> <p>This result occurs when you disable the TFTP service.</p> <ul style="list-style-type: none"> <li>For IPv4 <pre> bac_dpe# service tftp 1 ipv4 enabled false % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> <li>For IPv6 <pre> bac_dpe# service tftp 1 ipv6 enabled false % OK (Requires DPE restart "&gt; dpe reload") </pre> </li> </ul>				

**Table 3-2** List of service tftp Commands (continued)

Command	Description				
<b>service tftp ipv4   ipv6 verify-ip</b>	Enables the verification of requestor IP addresses on dynamic configuration TFTP requests.				
<b>no service tftp ipv4   ipv6 verify-ip</b>	To disable the verification of requestor IP addresses on dynamic configuration TFTP requests, use the <b>no</b> form of this command.				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>service tftp 1..1 ipv4   ipv6 verify-ip</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables verification of requestor IP addresses in IPv4.</li> <li><b>ipv6</b>—Enables verification of requestor IP addresses in IPv6.</li> </ul> </td><td>The verification of requestor IP addresses on dynamic configuration TFTP requests is by default enabled.</td></tr> </table>	Syntax Description	Defaults	<b>service tftp 1..1 ipv4   ipv6 verify-ip</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables verification of requestor IP addresses in IPv4.</li> <li><b>ipv6</b>—Enables verification of requestor IP addresses in IPv6.</li> </ul>	The verification of requestor IP addresses on dynamic configuration TFTP requests is by default enabled.
Syntax Description	Defaults				
<b>service tftp 1..1 ipv4   ipv6 verify-ip</b> <ul style="list-style-type: none"> <li><b>1..1</b>—Identifies the instance of the TFTP service.</li> <li><b>ipv4</b>—Enables verification of requestor IP addresses in IPv4.</li> <li><b>ipv6</b>—Enables verification of requestor IP addresses in IPv6.</li> </ul>	The verification of requestor IP addresses on dynamic configuration TFTP requests is by default enabled.				
	<b>Examples</b> <p>This result occurs when you enable verification of requestor IP addresses on TFTP requests.</p> <ul style="list-style-type: none"> <li>For IPv4 <pre> bac_dpe# service tftp 1 ipv4 verify-ip % OK </pre> </li> <li>For IPv6 <pre> bac_dpe# service tftp 1 ipv6 verify-ip % OK </pre> </li> </ul> <p>This result occurs when you disable verification of requestor IP addresses on TFTP requests.</p> <ul style="list-style-type: none"> <li>For IPv4 <pre> bac_dpe# no service tftp 1 ipv4 verify-ip % OK </pre> </li> <li>For IPv6 <pre> bac_dpe# no service tftp 1 ipv6 verify-ip % OK </pre> </li> </ul>				

# service tod

Use the **service tod** command to enable or disable the Time of Day (ToD) service running on the DPE for IPv4 or IPv6. The ToD service binds to only those interfaces that are configured for provisioning. For information on how to enable an interface for provisioning, see [interface ip provisioning, page 3-13](#).

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).



## Note

If the ToD port is not available, an error message appears.

## Syntax Description

**service tod *1..1* ipv4 | ipv6 enabled true | false**

- *1..1*—Identifies the instance of the ToD service.
- **ipv4**—Enables the ToD service for IPv4.
- **ipv6**—Enables the ToD service for IPv6.
- **true**—Enables the ToD service.
- **false**—Disables the ToD service.

## Defaults

The ToD service is by default disabled on the DPE.

## Examples

This result occurs when you enable the ToD service on the DPE.

- For IPv4
 

```

bac_dpe# service tod 1 ipv4 enabled true
% OK (Requires DPE restart "> dpe reload")
      
```
- For IPv6
 

```

bac_dpe# service tod 1 ipv6 enabled true
% OK (Requires DPE restart "> dpe reload")
      
```

This result occurs when you disable the ToD service on the DPE.

- For IPv4
 

```

bac_dpe# service tod 1 ipv4 enabled false
% OK (Requires DPE restart "> dpe reload")
      
```
- For IPv6
 

```

bac_dpe# service tod 1 ipv6 enabled false
% OK (Requires DPE restart "> dpe reload")
      
```

# show device-config

Use the **show device-config** command to display a device configuration that is cached at the DPE.

If you run this command 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 DPE licenses.
```

## Syntax Description

**show device-config** *mac* | *duid*

- *mac*—Specifies the MAC address of a device. The accepted formats for *mac*, assuming that the MAC address header is 1,6, are:
  - “Type,len,addr”; for example, 1,6,00:01:02:03:04:05 or 9,10,43:43:31:32:33:34:35:36:2d:41.
  - Exact-size octets; for example, 000102030405 or 00:01:02:03:04:05.
- *duid*—Specifies the DHCP Unique Identifier (DUID) of a device in an IPv6 environment; for example, 00:03:00:01:00:18:68:52:75:c0. A DUID cannot be more than 128 octets long.

## Defaults

No default behavior or values.

## Examples

This result occurs when you look up a configuration based on the MAC address of the device. This example assumes that the MAC address is 1,6,aa:bb:cc:dd:ee:ff.

```
bac_dpe# show device-config mac 1,6,aa:bb:cc:dd:ee:ff
DHCP configuration for device 1,6,aa:bb:cc:dd:ee:ff in default provisioning-group:
  Extension PRE_CLIENT_LOOKUP
    Dictionary REQUEST
      VALIDATE relay-agent-remote-id = 00:00:00:00:aa:bb:cc:dd
      VALIDATE_CONTINUE dhcp-parameter-request-list-blob =
42:43:01:03:02:04:07:06:0c:0f:7a:b1
      VALIDATE_CONTINUE dhcp-class-identifier =
"docsis1.1:052401010102010103010104010105010106010107010f0801100901000a01010b01080c0101"
    Dictionary ENVIRONMENT
      PUT_REPLACE client-class-name = "unprovisioned-docsis"
  Extension PRE_PACKET_ENCODE
    Dictionary RESPONSE
      PUT_REPLACE ccc-primary-dhcp-server = BYTES_BPR_PROPERTY_OPTIONAL_IP_ADDRESS_BIN
"/ccc/dhcp/primary"
      PUT_REPLACE ccc-secondary-dhcp-server = BYTES_BPR_PROPERTY_OPTIONAL_IP_ADDRESS_BIN
"/ccc/dhcp/secondary"
      PUT_REPLACE boot-file = "unprov.cm"
      PUT_REPLACE file = "unprov.cm"
      PUT_REPLACE siaddr = BYTES_DPE_IP_ADDRESS_BIN
      PUT_REPLACE tftp-server = BYTES_DPE_IP_ADDRESS_DOTTED_DECIMAL
      PUT_REPLACE time-servers = BYTES_DPE_IP_ADDRESS_BIN
```

This result occurs when you look up a configuration based on the DUID of the device. This example assumes that the DUID is 00:00:00:00:00:00:00:52:75:c0.

```
bac_dpe# show device-config duid 00:00:00:00:00:00:00:52:75:c0
DHCP configuration for device 00:00:00:00:00:00:00:52:75:c0 in default provisioning-group:
DHCP Configuration for device 00:00:00:00:00:00:00:52:75:c0
  Commands:
    PRE_CLIENT_LOOKUP: ENVIRONMENT, PUT_REPLACE, client-class-name,
unprovisioned-docsis
```

```

PRE_CLIENT_LOOKUP: RELAY_REQUEST, VALIDATE_CONTINUE, link-address,
20:01:04:20:38:00:05:00:00:00:00:00:00:00:00:01
PRE_CLIENT_LOOKUP: REQUEST, VALIDATE_OPTION_CONTINUE, {OPTION_NUMBER=16,
ENTERPRISE_ID=4491, INDEX=0, END}, 64:6f:63:73:69:73:33:2e:30
PRE_PACKET_ENCODE: RESPONSE, PUT_OPTION, {OPTION_NUMBER=17, ENTERPRISE_ID=4491,
SUBOPTION_NUMBER=33, END}, unprov.cm
PRE_PACKET_ENCODE: RESPONSE, PUT_OPTION, {OPTION_NUMBER=17, ENTERPRISE_ID=4491,
SUBOPTION_NUMBER=37, END}, BYTES_DPE_IPV6_ADDRESS_BIN
PRE_PACKET_ENCODE: RESPONSE, PUT_OPTION, {OPTION_NUMBER=17, ENTERPRISE_ID=4491,
SUBOPTION_NUMBER=32, END}, BYTES_DPE_IPV6_ADDRESS_BIN

```

This result occurs when the configuration for the specified device is not available in the DPE cache.

```

bac_dpe# show device-config mac 1,6,aa:bb:cc:dd:ee:aa
No configuration found on DPE.

```

## show dpe

Use the **show dpe** command to check to see if the DPE is running and to display the state of the process and, if running, its operational statistics. This command does not indicate if the DPE is running successfully, only that the process itself is currently executing. However, when the DPE is running, you can use statistics that this command displays to determine if the DPE is successfully servicing requests.

If you run this command 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 DPE licenses.

```

### Syntax Description

No keywords or arguments.

### Defaults

No default behavior or values.

### Examples

This result occurs when the DPE is running.

```

bac_dpe# show dpe
Process [dpe] is running

Version BAC 4.0 (SOL_BAC4_0_0_20000000_0000).
Caching 0 device configs and 6 external files.
Received 0 cache hits and 3 misses.
Received 0 lease updates.
Connection status is Ready.
Sent 0 SNMP informs and 0 SNMP sets.
Received 0 MTA provisioning successful SNMP informs.
Received 0 MTA provisioning failed SNMP informs.
Running for 10 hours 51 mins 23 secs.

```

This result occurs when the DPE is not running.

```

bac_dpe# show dpe
BAC Process Watchdog is running
Process [dpe] is not running

```

When this error occurs, start the DPE process. See [dpe start | stop](#), page 3-11.

This result occurs when the DPE is unable to service requests.

```
bac_dpe# show dpe
BAC Process Watchdog is running
Process [dpe] is not running; it is in back off mode
```

This error occurs when there is an issue with the DPE. Look at the DPE log (*dpe.log*) to troubleshoot the issue.

## show dpe config

Use the **show dpe config** command to display the current settings on the DPE.

<b>Syntax Description</b>	No keywords or arguments.
---------------------------	---------------------------

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Examples</b>	<pre>bac_dpe# show dpe config dpe port          = 49186 rdu host          = source rdu port          = ip primary groups    = provisioning-second-1,provisioning-second-2 secondary groups  = [no value]</pre>
-----------------	--

show dpe config





## CHAPTER 4

# PacketCable Voice Technology Commands

This chapter describes the command-line interface (CLI) commands that you can use to manage and monitor the PacketCable voice technology on the Cisco Broadband Access Center (BAC) Device Provisioning Engine (DPE).

The commands described in this chapter are:

Command	Description	CLI Mode	
		Login	Privileged
<code>debug service packetcable netsnmp</code>	Enables the PacketCable NetSNMP category for debug messages.		✓
<code>debug service packetcable registration</code>	Enables the PacketCable registration category for debug messages.		✓
<code>debug service packetcable registration-detail</code>	Enables the PacketCable registration detail category for debug messages.		✓
<code>debug service packetcable snmp</code>	Enables the PacketCable SNMP service category for debug messages.		✓
<code>service packetcable enable</code>	Enables or disables the PacketCable services.		✓
<code>service packetcable registration encryption enable</code>	Enables encryption on MTA configuration files.		✓
<code>service packetcable registration kdc-service-key</code>	Sets the service key for KDC communications.		✓
<code>service packetcable registration policy-privacy</code>	Sets the customer policy regarding enforcement of SNMP privacy in MTA communications.		✓
<code>service packetcable snmp key-material</code>	Sets the key material for MTA SNMP communications.		✓
<code>service packetcable snmp timeout</code>	Sets the timeout value for SNMP SET operations.		✓
<code>service packetcable show snmp log</code>	Displays PacketCable SNMP log entries.		✓

# debug service packetcable

Use the **debug service packetcable** command to debug the PacketCable technology service on the DPE. [Table 4-1](#) lists the keywords that you can use with this command. The PacketCable service on the DPE features one instance of the service, which you can configure to suit your requirements.

Before using any debug command, you must enable debugging by running the **debug on** command. If you run the following 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 DPE licenses.
```



## Caution

Enabling debug logging may have a severe impact on DPE performance. Do not leave the DPE running with debug turned on for an extended period of time.

**Table 4-1** List of debug service packetcable Commands for PacketCable Technology

Command	Description				
<b>debug service packetcable netsnmp</b>	Enables detailed debugging of the PacketCable NetSNMP service on the DPE.				
<b>no debug service packetcable netsnmp</b>	To disable detailed debugging of the PacketCable NetSNMP service, use the <b>no</b> form of this command.				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>debug service packetcable 1..1 netsnmp</b>  <b>1..1</b>—Identifies the instance of the PacketCable service. </td><td> Debugging of the PacketCable NetSNMP service is by default disabled. </td></tr> </table>	Syntax Description	Defaults	<b>debug service packetcable 1..1 netsnmp</b> <b>1..1</b> —Identifies the instance of the PacketCable service.	Debugging of the PacketCable NetSNMP service is by default disabled.
Syntax Description	Defaults				
<b>debug service packetcable 1..1 netsnmp</b> <b>1..1</b> —Identifies the instance of the PacketCable service.	Debugging of the PacketCable NetSNMP service is by default disabled.				
	<b>Examples</b> This result occurs when you enable debugging of the PacketCable NetSNMP service. <pre>bac_dpe# debug service packetcable 1 netsnmp % OK</pre> This result occurs when you disable debugging of the PacketCable NetSNMP service. <pre>bac_dpe# no debug service packetcable 1 netsnmp % OK</pre>				

Table 4-1 List of debug service packetcable Commands for PacketCable Technology (continued)

Command	Description				
<b>debug service packetcable registration</b>	Enables debugging of the PacketCable secure registration service on the DPE.				
<b>no debug service packetcable registration</b>	To disable debugging of the PacketCable secure registration service, use the <b>no</b> form of this command.				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>debug service packetcable 1..1 registration</b>  1..1—Identifies the instance of the PacketCable service. </td><td>Debugging of the PacketCable registration service is by default disabled.</td></tr> </table>	Syntax Description	Defaults	<b>debug service packetcable 1..1 registration</b> 1..1—Identifies the instance of the PacketCable service.	Debugging of the PacketCable registration service is by default disabled.
Syntax Description	Defaults				
<b>debug service packetcable 1..1 registration</b> 1..1—Identifies the instance of the PacketCable service.	Debugging of the PacketCable registration service is by default disabled.				
	<b>Examples</b> This result occurs when you enable debugging of the PacketCable registration service. <pre> bac_dpe# debug service packetcable 1 registration % OK </pre> This result occurs when you disable debugging of the PacketCable registration service. <pre> bac_dpe# no debug service packetcable 1 registration % OK </pre>				
<b>debug service packetcable registration-detail</b>	Enables the PacketCable registration detail category for debug messages.				
<b>no debug service packetcable registration-detail</b>	To disable debugging of the PacketCable secure registration service, use the <b>no</b> form of this command.				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>debug service packetcable 1..1 registration-detail</b>  1..1—Identifies the instance of the PacketCable service. </td><td>Debugging of the PacketCable registration detail category is by default disabled.</td></tr> </table>	Syntax Description	Defaults	<b>debug service packetcable 1..1 registration-detail</b> 1..1—Identifies the instance of the PacketCable service.	Debugging of the PacketCable registration detail category is by default disabled.
Syntax Description	Defaults				
<b>debug service packetcable 1..1 registration-detail</b> 1..1—Identifies the instance of the PacketCable service.	Debugging of the PacketCable registration detail category is by default disabled.				
	<b>Examples</b> This result occurs when you enable debugging of the PacketCable registration detail category. <pre> bac_dpe# debug service packetcable 1 registration-detail % OK </pre> This result occurs when you disable debugging of the PacketCable registration detail category. <pre> bac_dpe# no debug service packetcable 1 registration-detail % OK </pre>				

**Table 4-1** List of debug service packetcable Commands for PacketCable Technology (continued)

Command	Description				
<b>debug service packetcable snmp</b>	Enables detailed debugging of the PacketCable SNMP service on the DPE.				
<b>no debug service packetcable snmp</b>	To disable detailed debugging of the PacketCable SNMP service, use the <b>no</b> form of this command.				
	<table> <tr> <th>Syntax Description</th><th>Defaults</th></tr> <tr> <td> <b>debug service packetcable 1..1 snmp</b>  <b>1..1</b>—Identifies the instance of the PacketCable service. </td><td>Debugging of the PacketCable SNMP service is by default disabled.</td></tr> </table>	Syntax Description	Defaults	<b>debug service packetcable 1..1 snmp</b> <b>1..1</b> —Identifies the instance of the PacketCable service.	Debugging of the PacketCable SNMP service is by default disabled.
Syntax Description	Defaults				
<b>debug service packetcable 1..1 snmp</b> <b>1..1</b> —Identifies the instance of the PacketCable service.	Debugging of the PacketCable SNMP service is by default disabled.				
	<b>Examples</b> <p>This result occurs when you enable debugging of the PacketCable SNMP service.</p> <pre> bac_dpe# debug service packetcable 1 snmp % OK </pre> <p>This result occurs when you disable debugging of the PacketCable SNMP service.</p> <pre> bac_dpe# no debug service packetcable 1 snmp % OK </pre>				

## service packetcable enable

Use the **service packetcable enable** command to enable the PacketCable service on the DPE.

To enable PacketCable, you must:

- Configure at least one interface with a fully qualified domain name (FQDN) and enable provisioning. See [interface ip provisioning fqdn, page 3-15](#), and [interface ip provisioning, page 3-13](#).

If you do not configure an interface with an FQDN and enable provisioning on that interface, the following error appears:

```

Enabling packetcable requires at least one interface must have an FQDN configured and
provisioning enabled

```

```

Error processing command

```

- Set the service key for the Key Distribution Center (KDC). See [service packetcable registration kdc-service-key, page 4-6](#).

If you do not set a service key for the KDC, the following error appears:

```

A KDC service key must be present in order to enable PacketCable

```

```

Error processing command

```

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

<b>Syntax Description</b>	<b>service packetcable <i>1..1</i> enable</b> <i>1..1</i> —Identifies the instance of the PacketCable service.
---------------------------	---

<b>Defaults</b>	The PacketCable service on the DPE is by default enabled.
-----------------	---

<b>Examples</b>	<pre>bac_dpe# service packetcable 1 enable % OK (Requires DPE restart "&gt; dpe reload")</pre>
-----------------	--

## no service packetcable enable

Use the **no service packetcable enable** command to disable the PacketCable service on the DPE.

<b>Syntax Description</b>	<b>no service packetcable <i>1..1</i> enable</b> <i>1..1</i> —Identifies the instance of the PacketCable service.
---------------------------	--

<b>Defaults</b>	The PacketCable service on the DPE is by default enabled.
-----------------	---

<b>Examples</b>	<pre>bac_dpe# no service packetcable 1 enable % OK (Requires DPE restart "&gt; dpe reload")</pre>
-----------------	---

## service packetcable registration encryption enable

Use the **service packetcable registration encryption enable** command to enable encryption of MTA configuration files.

To disable encryption of MTA configuration files, use the **no** form of this command. See [no service packetcable registration encryption, page 4-6](#).

<b>Syntax Description</b>	<b>service packetcable <i>1..1</i> registration encryption enable</b> <i>1..1</i> —Identifies the instance of the PacketCable service.
---------------------------	---

<b>Defaults</b>	Encryption of MTA configuration files is by default disabled.
-----------------	---

<b>Examples</b>	<pre>bac_dpe# service packetcable 1 registration encryption enable % OK</pre>
-----------------	---

## no service packetcable registration encryption

Use the **no service packetcable registration encryption** command to disable encryption of MTA configuration files.

To enable encryption of MTA configuration files, see [service packetcable registration encryption enable](#), page 4-5.

### Syntax Description

**no service packetcable 1..1 registration encryption**

*1..1*—Identifies the instance of the PacketCable service.

### Defaults

Encryption of MTA configuration files is by default disabled.

### Examples

```
bac_dpe# no service packetcable 1 registration encryption
% OK
```

## service packetcable registration kdc-service-key

Use the **service packetcable registration kdc-service-key** command to generate and set a security key for communication between the KDC and a DPE.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload](#), page 3-10.

### Syntax Description

**service packetcable 1..1 registration kdc-service-key password**

- *1..1*—Identifies the instance of the PacketCable service.
- *password*—Identifies the password, which must be from 6 to 20 characters.



#### Note

The password that you enter must match the password that you enter while configuring the KDC using the KeyGen tool. Refer to the *Cisco Broadband Access Center Administrator Guide 4.0* for information on how to use the KeyGen tool.

You can verify the service key that this command creates by viewing the *dpe.properties* file, which resides in the *BPR\_HOME/dpe/conf* directory. Look for the value of the following parameter:

```
/pktcbl/regsvr/KDCServiceKey.
```

For example:

```
# more dpe.properties
...
/pktcbl/regsvr/KDCServiceKey=2e:d5:ef:e9:5a:4e:d7:06:67:dc:65:ac:bb:89:e3:2c:bb:
71:5f:22:bf:94:cf:2c
...
```

The output of this example is trimmed.

**Defaults**

No default behavior or values.

**Examples**

```
bac_dpe# service packetcable 1 registration kdc-service-key password3
% OK (Requires DPE restart "> dpe reload")
```

## service packetcable registration policy-privacy

Use the **service packetcable registration policy-privacy** command to set the customer policy on enforcing SNMP privacy in MTA communications.

Entering a value of zero lets the MTA choose the SNMPv3 privacy option. Entering a nonzero value means that the provisioning server sets the privacy option in SNMPv3 to a specific protocol, which is currently limited to DES.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload](#), page 3-10.

**Syntax Description**

**service packetcable *1..I* registration policy-privacy *value***

- *1..I*—Identifies the instance of the PacketCable service.
- *value*—Enter any zero or nonzero value to identify the customer policy. Values include:
  - 0—Indicates that the MTA selects the privacy option with Privacy being optional.
  - 1—Indicates that the policy is enforced, causing all MTAs to use Privacy. If Privacy is not used, the MTA does not start.
  - 32—Indicates that there is no Privacy.
  - 33—Indicates that Privacy is enabled for all devices.

**Defaults**

The default value for enforcing SNMP privacy is 1.

**Examples**

This result occurs when you enforce SNMP privacy, using the default value of 1, causing all MTAs to use Privacy.

```
bac_dpe# service packetcable 1 registration policy-privacy 1
% OK (Requires DPE restart "> dpe reload">
```

## service packetcable snmp key-material

Use the **service packetcable snmp key-material** command to generate and set a security key on the DPE to permit secure communication with the RDU. The secure communication channel with the RDU is used for PacketCable SNMPv3 cloning support only.

**Note**

You must set the same security key on both the DPE and the RDU. Use the **generateSharedSecret.sh** command-line tool, located in the *BPR\_HOME/rdu/bin* directory.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To clear the SNMPv3 service key and turn off the SNMPv3 cloning support, use the **no** form of this command. See [no service packetcable snmp key-material, page 4-8](#).

#### Syntax Description

**service packetcable 1..1 snmp key-material password**

- *1..1*—Identifies the instance of the PacketCable service.
- *password*—Identifies the password that you create, which must be from 6 to 20 characters.

#### Defaults

Generating a security key for secure communication with the RDU is by default disabled.

#### Examples

```
bac_dpe# service packetcable 1 snmp key-material password4
% OK (Requires DPE restart "> dpe reload")
```

## no service packetcable snmp key-material

Use the **no service packetcable snmp key-material** command to clear the SNMPv3 service key and turn off SNMPv3 cloning support.

After you use this command, run the **dpe reload** command so that the changes take effect. See [dpe reload, page 3-10](#).

To generate and set a security key on the DPE for secure communication with the RDU, see [service packetcable snmp key-material, page 4-7](#).

#### Syntax Description

**no service packetcable 1..1 snmp key-material**

*1..1*—Identifies the instance of the PacketCable service.

#### Defaults

Generating a security key for secure communication with the RDU is by default disabled.

#### Examples

```
bac_dpe# no service packetcable 1 snmp key-material
% OK (Requires DPE restart "> dpe reload")
```



## service packetcable snmp timeout

Use the **service packetcable snmp timeout** command to dynamically set the length of time that the PacketCable SNMP service waits for a response to any SNMP 'Set' operation.

### Syntax Description

**service packetcable *1..1* snmp timeout *time***

- *1..1*—Identifies the instance of the PacketCable service.
- *time*—Indicates the length of time that the PacketCable SNMP service waits, in seconds.

### Defaults

The default maximum length of time that the PacketCable SNMP service waits for a response to an SNMP 'Set' operation is 10 seconds.

### Examples

```
bac_dpe# service packetcable 1 snmp timeout 15
% OK
```

## service packetcable show snmp log

Use the **service packetcable show snmp log** command to show recent log entries for the PacketCable SNMP provisioning service, which includes information about the general PacketCable SNMP provisioning service and the logging of any MTA provisioning errors or severe problems.

### Syntax Description

**service packetcable *1..1* show snmp log [last *1..9999* | run]**

- *1..1*—Identifies the instance of the PacketCable service.
- **last *1..9999***—Identifies the specified number of recent log entries from the PacketCable SNMP log file that you want to display. This keyword is optional.
- **run**—Displays all log messages from the PacketCable SNMP log file. This keyword is optional.

### Defaults

No default behavior or values.

### Examples

This result occurs when you use the **service packetcable show snmp log** command to display all log entries for the PacketCable SNMP service.

```
bac_dpe# service packetcable 1 show snmp log
Error [SS_MSG] 2007-12-18 14:30:44,000 - SNMP Service Tracing Set To 400
...
```



#### Note

The output presented in this example is trimmed.

This result occurs when you use the **service packetcable show snmp log last** command to display a specific number of recent log entries; in this example, the last 5 entries.

```
bac_dpe# service packetcable 1 show snmp log last 5
Error [SS_MSG] 2007-12-18 14:35:44,000 - SNMP Service Tracing Set To 800
```

This result occurs when you use the **service packetcable show snmp log run** command to display a running PacketCable SNMP log. The command continues to run until you press **Enter**.

```
bac_dpe # service packetcable 1 show snmp log run
Press <enter> to stop.

2007 12 17 11:43:43 CDT: %CSRC-5: Notification DPE: Device Provisioning Engine starting up
2007 12 17 11:43:44 CDT: %CSRC-6: Info DPE: Attempt to connect to RDU dpe failed;
2007 12 17 11:43:44 CDT: %CSRC-6: Info TFTP: Ready to service requests

Stopped.
```



## CHAPTER 5

# SNMP Agent Commands

This chapter describes the command-line interface (CLI) commands that you can use to manage and monitor the SNMP agent on the Cisco Broadband Access Center (BAC) Device Provisioning Engine (DPE).

The commands described in this chapter are:

Command	Description	CLI Mode	
		Login	Privileged
<code>snmp-server community</code>	Defines the community string.		✓
<code>no snmp-server community</code>	Clears the specified community string.		✓
<code>snmp-server contact</code>	Sets the system contact.		✓
<code>no snmp-server contact</code>	Clears the specified system contact.		✓
<code>snmp-server host</code>	Sets the SNMP notification recipient host.		✓
<code>no snmp-server host</code>	Clears the SNMP notification recipient host.		✓
<code>snmp-server inform</code>	Sets the notification type to inform.		✓
<code>no snmp-server inform</code>	Sets the notification type to trap.		✓
<code>snmp-server location</code>	Sets system location.		✓
<code>no snmp-server location</code>	Clears system location.		✓
<code>snmp-server reload</code>	Restarts the SNMP processes.		✓
<code>snmp-server start   stop</code>	Starts or stops the SNMP processes.		✓
<code>snmp-server udp-port</code>	Sets the UDP port to which the SNMP agent listens.		✓
<code>no snmp-server udp-port</code>	Sets the configured UDP port to which the SNMP agent listens back to the default port.		✓

## snmp-server community

Use the **snmp-server community** command to define the community string that allows external SNMP managers access to the SNMP agent on the DPE.

After you use this command, run the **snmp-server reload** command so that the changes take effect. See [snmp-server reload, page 5-7](#).

To delete the specified community string, use the **no** form of this command. See [no snmp-server community, page 5-2](#).

---

### Syntax Description

**snmp-server community** *string* [**ro** | **rw**]

- *string*—Identifies the SNMP community.
- **ro**—Assigns a read-only community string. Only Get requests (queries) can be performed. The network management system and the managed device must reference the same community string.
- **rw**—Assigns a read-write community string. SNMP applications require **rw** access for Set operations. The **rw** community string enables write access to vendor ID values.

---

### Defaults

The default **ro** and **rw** community strings are **baccread** and **baccwrite**, respectively. We recommend that you change these values before deploying BAC.

---

### Examples

This result occurs when you use the default **baccread** option for the read-only community string.

```
bac_dpe# snmp-server community baccread ro
% OK ()
Requires SNMP agent restart "> snmp-server reload"
```

This result occurs when you use the default **baccwrite** option for the read-write community string.

```
bac_dpe# snmp-server community baccwrite rw
% OK ()
Requires SNMP agent restart "> snmp-server reload"
```

## no snmp-server community

Use the **no snmp-server community** command to delete the specified community string that allows access for external SNMP managers to the SNMP agent on the DPE.

After you use this command, run the **snmp-server reload** command to restart the SNMP agent. See [snmp-server reload, page 5-7](#).

To set up the community access string, see [snmp-server community, page 5-2](#).

---

### Syntax Description

**no snmp-server community** *string*

*string*—Identifies the SNMP community.

---

**Defaults**

No default behavior or values.

---

**Examples**

```
bac_dpe# no snmp-server community test_community
% OK ()
Requires SNMP agent restart "> snmp-server reload"
```

## snmp-server contact

Use the **snmp-server contact** command to enter a string of characters that identify the system contact (sysContact) as defined in the MIB II.

After you use this command, run the **snmp-server reload** command to restart the SNMP agent. See [snmp-server reload, page 5-7](#).

To remove the system contact, use the **no** form of this command. See [no snmp-server contact, page 5-3](#).

---

**Syntax Description**

**snmp-server contact** *text*

*text*—Identifies the name of the contact responsible for the DPE.

---

**Defaults**

No default behavior or values.

---

**Examples**

```
bac_dpe# snmp-server contact joe
% OK (Requires SNMP server restart "> snmp-server reload")
```

## no snmp-server contact

Use the **no snmp-server contact** command to remove the system contact that is responsible for the DPE.

After you use this command, run the **snmp-server reload** command to restart the SNMP agent. See [snmp-server reload, page 5-7](#).

To enter a string of characters that identify the system contact, use the **snmp-server contact** command. See [snmp-server contact, page 5-3](#).

---

**Syntax Description**

No keywords or arguments.

---

**Defaults**

No default behavior or values.

---

**Examples**

```
bac_dpe# no snmp-server contact
% OK (Requires SNMP server restart "> snmp-server reload")
```

## snmp-server host

Use the **snmp-server host** command to specify the recipient of all SNMP notifications and to configure the SNMP agent to send traps or informs to multiple hosts.



### Note

You can use multiple instances of this command to specify more than one notification recipient.

After you use this command, run the **snmp-server reload** command so that the changes take effect. See [snmp-server reload, page 5-7](#).

To remove the specified notification recipient, use the **no** form of this command. See [no snmp-server host, page 5-4](#).

### Syntax Description

**snmp-server host** *host-addr* **notification** *community* [**udp-port** *port*]

- *host-addr*—Specifies the IP address of the host to which notifications are sent.
- *community*—Specifies the community string to use while sending SNMP notifications.
- *port*—Identifies the UDP port used to send SNMP notifications. The default port number is 162.

### Defaults

No default behavior or values.

### Examples

```
bac_dpe# snmp-server host 10.10.10.5 notification community public udp-port 162
% OK ()
Requires SNMP agent restart "> snmp-server reload"
```

## no snmp-server host

Use the **no snmp-server host** command to remove the specified notification recipient.

After you use this command, run the **snmp-server reload** command so that the changes take effect. See [snmp-server reload, page 5-7](#).

To specify the recipient of all SNMP notifications, see [snmp-server host, page 5-4](#).

### Syntax Description

**no snmp-server host** *host-addr* **notification**

*host-addr*—Identifies the IP address of the host.

### Defaults

No default behavior or values.

### Examples

```
bac_dpe# no snmp-server host 10.10.10.5 notification
% OK ()
Requires SNMP agent restart "> snmp-server reload"
```

## snmp-server inform

Use the **snmp-server inform** command to specify the type of SNMP notification sent from the SNMP agent to the SNMP manager. Use it to send SNMP informs rather than traps, although traps are sent by default.

After you use this command, run the **snmp-server reload** command to restart the SNMP agent. See [snmp-server reload, page 5-7](#).

To switch the SNMP notifications back to the default setting of traps, use the **no** form of this command. See [no snmp-server inform, page 5-5](#).

### Syntax Description

**snmp-server inform** [*retries count timeout time*]

- *count*—Identifies the number of times an inform can be sent from the SNMP agent to the manager. If the timeout period expires before the configured number of retries is reached, the SNMP server stops sending informs.
- *time*—Identifies the length of time (in milliseconds) that the SNMP server continues to send informs. If the maximum number of retries is reached before the timeout expires, the SNMP server stops sending informs.



#### Note

Specifying the retry count and the timeout while configuring SNMP informs is optional. If you do not specify any values, the default values are used.

### Defaults

SNMP notification via informs is by default disabled. If you configure SNMP notification as informs, the default number of retries is 1 and the default timeout is 5000 milliseconds.

### Examples

In this example, an SNMP inform will be sent up to a maximum of 5 times before the retries stop. If the timeout of 500 milliseconds expires before the 5 retries take place, the inform is not sent again.

```
bac_dpe# snmp-server inform retries 5 timeout 500
% OK ()
Requires SNMP agent restart "> snmp-server reload"
```

## no snmp-server inform

Use the **no snmp-server inform** command to switch the SNMP notifications that are sent to the SNMP manager back to the default setting of traps.

After you use this command, run the **snmp-server reload** command to restart the SNMP agent. See [snmp-server reload, page 5-7](#).

To specify the type of SNMP notification sent, see [snmp-server inform, page 5-5](#).

### Syntax Description

No keywords or arguments.

---

**Defaults**

SNMP notification is by default set to traps (not informs).

---

**Examples**

```
bac_dpe# no snmp-server inform
% OK ( )
Requires SNMP agent restart "> snmp-server reload"
```

## snmp-server location

Use the **snmp-server location** command to enter a string of characters that identify the system location (sysLocation) as defined in the MIB II.

After you use this command, run the **snmp-server reload** command to restart the SNMP agent. See [snmp-server reload, page 5-7](#).

To remove a system location, use the **no** form of this command. See [no snmp-server location, page 5-6](#).

---

**Syntax Description**

**snmp-server location** *text*

*text*—Identifies the physical location of the DPE.

---

**Defaults**

No default behavior or values.

---

**Examples**

```
bac_dpe# snmp-server location st_louis
% OK (Requires SNMP agent restart "> snmp-server reload")
```

## no snmp-server location

Use the **no snmp-server location** command to remove a system location.

After you use this command, run the **snmp-server reload** command to restart the SNMP agent. See [snmp-server reload, page 5-7](#).

To enter a string of characters that identify the system location, see [snmp-server location, page 5-6](#).

---

**Syntax Description**

No keywords or arguments.

---

**Defaults**

No default behavior or values.

---

**Examples**

```
bac_dpe# no snmp-server location
% OK (Requires SNMP server restart "> snmp-server reload")
```



# snmp-server reload

Use the **snmp-server reload** command to reload the SNMP agent process on the DPE.

**Note**

When the SNMP process is started on the RDU and DPE, a trap containing the system uptime is sent. BAC trap notifications, however, are disabled by default. You can enable trap notifications only by setting the corresponding MIB object via SNMP. You cannot enable trap notifications via the CLI or the administrator user interface.

This BAC release supports only the trap notifications defined in the CISCO-BACC-SERVER-MIB and CISCO-BACC-RDU-MIB files. For more information, refer to the MIB files in the *BPR\_HOME/rdu/mibs* directory.

**Syntax Description**

No keywords or arguments.

**Defaults**

No default behavior or values.

**Examples**

```
bac_dpe# snmp-server reload
Process [snmpAgent] has been restarted.

bac_dpe#
```

# snmp-server start | stop

Use the **snmp start | stop** command to start or stop the SNMP agent process on the DPE.

**Syntax Description**

**snmp-server start | stop**

- **start**—Starts the SNMP agent process on the DPE.
- **stop**—Stops the SNMP agent process on the DPE.

**Defaults**

No default behavior or values.

**Examples**

This result occurs when the SNMP agent process is started.

```
bac_dpe# snmp-server start
Process [snmpAgent] has been started.

bac_dpe#
```

This result occurs when the SNMP agent process is already running.

```
bac_dpe# snmp-server start
Process [snmpAgent] is already running
```

This result occurs when the SNMP agent process is stopped.

```
bac_dpe# snmp-server stop
Process [snmpAgent] has been stopped.
```

```
bac_dpe#
```

## snmp-server udp-port

Use the **snmp-server udp-port** command to identify the UDP port number on which the SNMP agent listens.

The DPE requires this command to prevent potential sharing violations between ports that other applications use. The changing of port numbers is used to resolve potential port conflict.

To change the port to which the SNMP agent listens back to the default UDP port number, use the **no** form of this command. See [no snmp-server udp-port](#), page 5-8.

---

### Syntax Description

**snmp-server udp-port** *port*

*port*—Identifies the UDP port to which the SNMP agent listens.

---

### Defaults

The default port number of the SNMP agent is 8001.



#### Note

To eliminate potential port conflicts with other SNMP agents on the computer, the default port number is different from the standard well-known SMNP agent port. We recommend that you change the SNMP agent port to the well-known port number 161.

---

### Examples

```
bac_dpe# snmp-server udp-port 161
% OK ( )
Requires SNMP agent restart "> snmp-server reload"
```

## no snmp-server udp-port

Use the **no snmp-server udp-port** command to change the UDP port to which the SNMP agent listens to the default port (8001).



#### Note

Using a port number other than the standard well-known SNMP agent port number of 161 increases the likelihood of potential port conflicts with other SNMP agents running on the same computer.

To specify the UDP port number to which the SNMP agent listens, see [snmp-server udp-port](#), page 5-8.

---

**Syntax Description** No keywords or arguments.

---

**Defaults** The default port number of the SNMP agent is 8001.

---

**Examples**

```
bac_dpe# no snmp-server udp-port
% OK ()
Requires SNMP agent restart "> snmp-server reload"
```

■ no snmp-server udp-port



# CHAPTER 6

## Log System Management Commands

This chapter describes the command-line interface (CLI) commands that you can use to debug the Cisco Broadband Access Center (BAC) Device Provisioning Engine (DPE), and monitor and manage the BAC log system.

Before using a debug command, you must enable DPE debugging by running the **debug on** command. If you run the following 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.
```



**Caution**

Enabling debug logging may have a severe impact on DPE performance. Do not leave the DPE running with debug turned on for an extended period of time.

The commands described in this chapter are:

Command	Description	CLI Mode	
		Login	Privileged
<a href="#">clear logs</a>	Removes out-of-date log files from the system.		✓
<a href="#">debug dpe cache</a>	Debugs the DPE cache.		✓
<a href="#">debug dpe connection</a>	Debugs the DPE connection.		✓
<a href="#">debug dpe dpe-server</a>	Debugs the DPE server.		✓
<a href="#">debug dpe event-manager</a>	Debugs the DPE event manager.		✓
<a href="#">debug dpe exceptions</a>	Debugs DPE exceptions.		✓
<a href="#">debug dpe framework</a>	Debugs the DPE framework.		✓
<a href="#">debug dpe messaging</a>	Debugs DPE messaging.		✓
<a href="#">debug on</a>	Enables debug logging.		✓
<a href="#">debug service tftp ipv4   ipv6</a>	Debugs TFTP transfers.		✓
<a href="#">no debug</a>	Disables debug logging.		✓
<a href="#">log level</a>	Sets the level of minimum DPE log messages.		✓
<a href="#">show log</a>	Displays recent log entries for the DPE.	✓	✓

# clear logs

Use the **clear logs** command to remove historic (out-of-date) log files that exist on the system. These files include:

- DPE logs
- Hardware
- Syslog

Over time, historic log files accumulate within the DPE. You can use the **support bundle state** command to bundle these logs. We recommend that you create a bundle before clearing logs, so that no necessary files are lost accidentally.

---

<b>Syntax Description</b>	No keywords or arguments.
---------------------------	---------------------------

---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

---

<b>Examples</b>	<pre>bac_dpe# clear logs Clearing historic log files... + Removing 1 DPE log files... + No more historic logs.</pre>
-----------------	--

# debug dpe

Use the **debug dpe** command to configure debug settings on the DPE. [Table 6-1](#) describes the keywords that you can use with this command.



## Note

Enter the commands described in [Table 6-1](#) as indicated.

**Table 6-1** *List of debug dpe Commands*

Command	Description				
<b>debug dpe cache</b>  <b>no debug dpe cache</b>	<p>Enables debugging of the DPE cache, which involves messages pertaining to the DPE cache including:</p> <ul style="list-style-type: none"> <li>Logging requests for cache entries</li> <li>Updates to the cache</li> <li>Other interactions by DPE subsystems</li> </ul> <p>To disable DPE cache debugging, use the <b>no</b> form of this command.</p> <table border="1"> <thead> <tr> <th>Examples</th><th>Defaults</th></tr> </thead> <tbody> <tr> <td> <p>This result occurs when you enable debugging of the DPE cache.</p> <pre> bac_dpe# debug dpe cache % OK </pre> <p>This result occurs when you disable debugging of the DPE cache.</p> <pre> bac_dpe# no debug dpe cache % OK </pre> </td><td> <p>Debugging of the DPE cache is by default disabled.</p> </td></tr> </tbody> </table>	Examples	Defaults	<p>This result occurs when you enable debugging of the DPE cache.</p> <pre> bac_dpe# debug dpe cache % OK </pre> <p>This result occurs when you disable debugging of the DPE cache.</p> <pre> bac_dpe# no debug dpe cache % OK </pre>	<p>Debugging of the DPE cache is by default disabled.</p>
Examples	Defaults				
<p>This result occurs when you enable debugging of the DPE cache.</p> <pre> bac_dpe# debug dpe cache % OK </pre> <p>This result occurs when you disable debugging of the DPE cache.</p> <pre> bac_dpe# no debug dpe cache % OK </pre>	<p>Debugging of the DPE cache is by default disabled.</p>				
<b>debug dpe connection</b>  <b>no debug dpe connection</b>	<p>Enables the debugging of the DPE connection, which logs communication subsystem status and error messages. Use this command to identify communication problems between the DPE and the RDU.</p> <p>To disable debugging of the DPE connection, use the <b>no</b> form of this command.</p> <table border="1"> <thead> <tr> <th>Examples</th><th>Defaults</th></tr> </thead> <tbody> <tr> <td> <p>This result occurs when you enable debugging of the DPE connection.</p> <pre> bac_dpe# debug dpe connection % OK </pre> <p>This result occurs when you disable debugging of the DPE connection.</p> <pre> bac_dpe# no debug dpe connection % OK </pre> </td><td> <p>Debugging of the DPE connection is by default disabled.</p> </td></tr> </tbody> </table>	Examples	Defaults	<p>This result occurs when you enable debugging of the DPE connection.</p> <pre> bac_dpe# debug dpe connection % OK </pre> <p>This result occurs when you disable debugging of the DPE connection.</p> <pre> bac_dpe# no debug dpe connection % OK </pre>	<p>Debugging of the DPE connection is by default disabled.</p>
Examples	Defaults				
<p>This result occurs when you enable debugging of the DPE connection.</p> <pre> bac_dpe# debug dpe connection % OK </pre> <p>This result occurs when you disable debugging of the DPE connection.</p> <pre> bac_dpe# no debug dpe connection % OK </pre>	<p>Debugging of the DPE connection is by default disabled.</p>				

**Table 6-1** List of debug dpe Commands (continued)

Command	Description	
<b>debug dpe dpe-server</b>	Enables debugging of the DPE server, which involves logging messages about the overall status and issues of the DPE server.	
<b>no debug dpe dpe-server</b>	To disable the debugging of the DPE server, use the <b>no</b> form of this command.	
	<b>Examples</b> This result occurs when you enable debugging of the DPE server. <pre>bac_dpe# debug dpe dpe-server % OK</pre> This result occurs when you disable debugging of the DPE server. <pre>bac_dpe# no debug dpe dpe-server % OK</pre>	<b>Defaults</b> Debugging of the DPE server is by default disabled.
<b>debug dpe event-manager</b>	Enables debugging of the DPE event manager, which involves logging messages and conditions showing the state of the event manager.	
<b>no debug dpe event-manager</b>	To disable debugging of the DPE event manager, use the <b>no</b> form of this command.	
	<b>Examples</b> This result occurs when you enable debugging of the DPE event manager. <pre>bac_dpe# debug dpe event-manager % OK</pre> This result occurs when you disable debugging of the DPE event manager. <pre>bac_dpe# no debug dpe event-manager % OK</pre>	<b>Defaults</b> Debugging of the DPE event manager is by default enabled.



**Table 6-1**      *List of debug dpe Commands (continued)*

Command	Description	
<b>debug dpe exceptions</b>  <b>no debug dpe exceptions</b>	<p>Enables the debugging of DPE exceptions, which involves logging full stack traces for exceptions occurring during system operation. In unusual situations, such as when the system is apparently corrupt or behaving abnormally, this command can provide valuable information for Cisco support.</p> <p>To disable the debugging of DPE exceptions, use the <b>no</b> form of this command.</p>	
	<p><b>Examples</b></p> <p>This result occurs when you enable debugging of DPE exceptions.</p> <pre>bac_dpe# debug dpe exceptions % OK</pre> <p>This result occurs when you disable debugging of DPE exceptions.</p> <pre>bac_dpe# no debug dpe exceptions % OK</pre>	<p><b>Defaults</b></p> <p>Debugging of DPE exceptions is by default enabled.</p>
<b>debug dpe framework</b>  <b>no debug dpe framework</b>	<p>Enables the debugging of the DPE framework, which involves logging information about the underlying framework of the DPE server. This infrastructure provides for all the various servers in BAC.</p> <p>To disable the debugging of the DPE framework, use the <b>no</b> form of this command.</p>	
	<p><b>Examples</b></p> <p>This result occurs when you enable debugging of the DPE framework.</p> <pre>bac_dpe# debug dpe framework % OK</pre> <p>This result occurs when you disable debugging of the DPE framework.</p> <pre>bac_dpe# no debug dpe framework % OK</pre>	<p><b>Defaults</b></p> <p>Debugging of the DPE framework is by default enabled.</p>

**Table 6-1** List of debug dpe Commands (continued)

Command	Description	
<b>debug dpe messaging</b>	Enables debugging of DPE messaging, which involves logging details about the DPE messaging subsystem. This subsystem is used primarily for communication between the DPE and the RDU.	
<b>no debug dpe messaging</b>	To disable the debugging of DPE messaging, use the <b>no</b> form of this command.	
	<b>Examples</b> This result occurs when you enable debugging of DPE messaging. <pre> bac_dpe# debug dpe messaging % OK </pre> This result occurs when you disable debugging of DPE messaging. <pre> bac_dpe# no debug dpe messaging % OK </pre>	<b>Defaults</b> Debugging of DPE messaging is by default disabled.

## debug on

Use the **debug on** command to enable debug logging, which can be helpful when troubleshooting possible system problems. Additionally, you must separately enable specific debugging categories with commands such as **debug dpe cache**.



### Caution

Enabling debug logging may have a severe impact on DPE performance. Do not leave the DPE running with debug turned on for an extended period of time.

To disable debug logging, run the **no debug** command. See [no debug](#), page 6-8.

### Syntax Description

No keywords or arguments.

### Defaults

Debugging is by default disabled.

### Examples

```

bac_dpe# debug on
% OK

```

## debug service tftp ipv4 | ipv6

Use the **debug service tftp ipv4 | ipv6** command to enable debugging of TFTP transfers for IPv4 or IPv6.

To disable debugging of the TFTP service, use the **no** form of this command. See [no debug service tftp ipv4 | ipv6](#), page 6-7.

### Syntax Description

**debug service tftp 1.1 ipv4 | ipv6**

- **1.1**—Identifies the instance of the TFTP service on the DPE.
- **ipv4**—Specifies debugging of the TFTP service for IPv4.
- **ipv6**—Specifies debugging of the TFTP service for IPv6.

### Defaults

Debugging of the TFTP service is by default disabled.

### Examples

This result occurs when you enable debugging of the TFTP service for IPv4.

```
bac_dpe# debug service tftp 1 ipv4
% OK
```

This result occurs when you enable debugging of the TFTP service for IPv6.

```
bac_dpe# debug service tftp 1 ipv6
% OK
```

## no debug service tftp ipv4 | ipv6

Use the **no debug service tftp ipv4 | ipv6** command to disable debugging of TFTP transfers for IPv4 or IPv6.

To enable debugging of the TFTP service, see [debug service tftp ipv4 | ipv6](#), page 6-7.

### Syntax Description

**no debug service tftp 1.1 ipv4 | ipv6**

- **1.1**—Identifies the instance of the TFTP service on the DPE.
- **ipv4**—Specifies debugging of the TFTP service for IPv4.
- **ipv6**—Specifies debugging of the TFTP service for IPv6.

### Defaults

Debugging of the TFTP service is by default disabled.

### Examples

This result occurs when you disable debugging of the TFTP service for IPv4.

```
bac_dpe# no debug service tftp 1 ipv4
% OK
```

This result occurs when you disable debugging of the TFTP service for IPv6.

```
bac_dpe# no debug service tftp 1 ipv6
% OK
```

## no debug

Use the **no debug** command to disable all debug logging.

To enable debug logging, see [debug on, page 6-6](#).

### Syntax Description

No keywords or arguments.

### Defaults

Debug logging is by default disabled.

### Examples

```
bac_dpe# no debug
% OK
```

## log level

Use the **log level** command to set the level of minimum DPE log messages that are saved, as described in the *Cisco Broadband Access Center Administrator Guide, 4.0*.

### Syntax Description

**log level** *number*

*number*—Identifies the logging level, by number, to be saved. [Table 6-2](#) describes the log levels that BAC supports.

**Table 6-2 DPE Log Levels**

Log Level No.	Description
0-emergency	Saves all emergency messages.
1-alert	Saves all activities that need immediate action and those of a more severe nature.
2-critical	Saves all critical conditions and those of a more severe nature.
3-error	Saves all error messages and those of a more severe nature.
4-warning	Saves all warning messages and those of a more severe nature.
5-notification	Saves all notification messages and those of a more severe nature.
6-info	Saves all logging messages available.

**Note**

Setting a specific log level saves messages less than or equal to the configured level. For example, when you set the log level at 5-notification, all events generating messages with a log level of 4 or less are written into the log file.

The logging system's log levels are used to identify the urgency with which you might want to address log issues. The 0-emergency setting is the most severe level of logging, while 6-info is the least severe, saving mostly informational log messages.

**Defaults**

The default log level is 5-notification.

**Examples**

```
bac_dpe# log level 6
% OK
```

## show log

Use the **show log** command to show all recent log entries for the DPE. These logs contain general DPE process information, including all system errors or severe problems. Check this log when the system is experiencing difficulties.

If the log contains insufficient information, enable the debug logging function and experiment with the different categories related to the problem. See [debug dpe, page 6-3](#), for detailed information.

**Syntax Description**

**show log** [**last** *1..999* | **run**]

- **last** *1..999*—Shows the specified number of recent log entries for the DPE, with *1..999* specifying the number of log entries that you want to display. This keyword is optional.
- **run**—Displays the running DPE log, which starts showing all messages logged to the DPE log. The command continues to run until you press Enter. This keyword is optional.

**Defaults**

No default behavior or values.

**Examples**

This result occurs when you use the **show log** command.

```
bac_dpe# show log
dpe.example.com: 2007 06 04 08:01:42 EDT: %BPR-DPE-5-0236: [Device Provisioning Engine]
starting up.
dpe.example.com: 2007 06 04 08:01:42 EDT: %BPR-DPE-6-0822: Server version [BAC 4.0.0
(SOL_BAC4_0_0_00000000_0505)].
dpe.example.com: 2007 06 04 08:01:42 EDT: %BPR-DPE-6-0689: Maximum Java heap size [307
MiB].
dpe.example.com: 2007 06 04 08:01:42 EDT: %BPR-DPE-6-0690: Maximum database cache size
[102 MiB].
dpe.example.com: 2007 06 04 08:01:42 EDT: %BPR-DPE-5-1360: Connecting to RDU
[dpe.example.com:49187]. Rate [1/d].
dpe.example.com: 2007 06 04 08:05:31 EDT: %BPR-DPE-5-0195: Connected to RDU
[dpe.example.com:49187]. Time to connect [3.8 min]. Rate [1/d].
```

```
dpe.example.com: 2007 06 04 08:05:31 EDT: %BPR-DPE-5-0982: Configured provisioning
interfaces: [localhost[10.10.0.1]].
dpe.example.com: 2007 06 04 08:05:31 EDT: %BPR-DPE-5-1359: Batch
[DPE:dpe.example.com/10.86.149.133:bf7190:112f6a01cf7:80000002]. Registering with RDU.
Rate [1/d].
dpe.example.com: 2007 06 04 08:05:32 EDT: %BPR-LICENSING-3-0998: Server registration
failed. Lack of DPE licenses.
dpe.example.com: 2007 06 04 08:05:33 EDT: %BPR-DPE-5-1374: Opening database [default.db].
dpe.example.com: 2007 06 04 08:05:34 EDT: %BPR-DPE-5-1375: Opened database [default.db].
Time to open [1.2 s].
dpe.example.com: 2007 06 04 08:05:34 EDT: %BPR-TFTP-5-0462: Service is disabled.
dpe.example.com: 2007 06 04 08:05:34 EDT: %BPR-TOD-5-5501: TOD Server disabled.
dpe.example.com: 2007 06 04 08:19:21 EDT: %BPR-LICENSING-5-1002: DPE received a license
event from the RDU.
dpe.example.com: 2006 12 21 11:22:20 GMT: %BPR-DPE-5: DPE-0: Device Provisioning Engine
starting up
...
```




---

**Note** The output presented in this example is trimmed for demonstration purposes.

---

This result occurs when you use the **show log last** command.

```
bac_dpe# show log last 2
dpe.example.com: 2007 06 04 08:19:23 EDT: %BPR-DPE-5-0147: Batch dpe.example.com: 2007 06
04 08:19:23 EDT: %BPR-DPE-5-1371: Synchronized [0] cached device configurations with RDU.
Time to synchronize [52 ms] ([0/s]).
dpe.example.com: 2006 12 21 11:28:17 GMT: %BPR-DPE-5: DPE-0: Device Provisioning Engine
starting up
```

This result occurs when you use the **show log run** command.

```
dpe# show log run
Press <enter> to stop.
dpe.example.com: 2006 12 21 11:43:43 GMT: %BPR-DPE-5: DPE-0: Device Provisioning Engine
starting up
dpe.example.com: 2006 12 21 11:43:44 GMT: %BPR-DPE-5: Info DPE: Attempt to connect to RDU
BPR_host.example.com:49187 failed;
dpe.example.com: 2006 12 21 11:43:44 GMT: %BPR-DPE-5: Info TFTP: Ready to service requests

% Stopped.
```



# CHAPTER 7

## Support and Troubleshooting Commands

This chapter contains the command-line interface (CLI) commands that you can use to support troubleshooting for the Cisco Broadband Access Center (BAC) Device Provisioning Engine (DPE).

The commands described in this chapter include:

Command	Description	CLI Mode	
		Login	Privileged
<a href="#">clear bundles</a>	Clears existing archived bundles on the DPE.		✓
<a href="#">show bundles</a>	Displays bundles currently available in the outgoing directory.	✓	✓
<a href="#">support bundle cache</a>	Bundles the current DPE cache.		✓

### clear bundles

Use the **clear bundles** command to clear existing archived bundles on the DPE. These bundles, which you create using the **support bundle cache** command, normally contain archived logs and archived state information, which are of use to the Cisco Technical Assistance Center.



#### Caution

Before using the **clear bundles** command, ensure that you retrieve all bundles because you will lose the archived state.

Once you enter this command, a prompt appears to indicate that the bundles are being cleared. When bundling is complete, the amount of disk space cleared (in bytes) appears.

#### Syntax Description

No keywords or arguments.

#### Defaults

No default behavior or values.

**Examples**

This result occurs when existing archived bundles are cleared.

```
bac_dpe# clear bundles
Clearing Cisco support bundles...
+ 89088 bytes cleared.
```

This result occurs when there are no archived bundles to clear.

```
bac_dpe# clear bundles
Clearing Cisco support bundles...
+ No bundles to clear.
```

## show bundles

Use the **show bundles** command to display the bundles currently available in the outgoing directory. The bundles, which you create using the **support bundle cache** command, are accessible from the FTP server of the DPE.

This command identifies the bundles that are archived. If there are no bundles, a prompt appears indicating that no bundles are available.

**Syntax Description**

No keywords or arguments.

**Defaults**

No default behavior or values.

**Examples**

This result occurs when bundles are archived.

```
bac_dpe# show bundles
outgoing/state-20070608-043109.bpr
outgoing/cache-20070608-043150.bpr
```

This result occurs when there are no archived bundles.

```
bac_dpe# show bundles
No bundles currently available.
```

## support bundle cache

Use the **support bundle cache** command to bundle the current DPE cache. This command is useful when archiving the cache for delivery to the Cisco Technical Assistance Center. Once the bundle is created, it is available from the outgoing directory of the FTP server.

After the command creates the cache bundle, it displays the bundle specifics, including the compressed size of the bundle file.

**Syntax Description**

No keywords or arguments.



---

**Defaults**

No default behavior or values.

---

**Examples**

```
bac_dpe# support bundle cache  
Creating cache bundle for Cisco support...  
+ outgoing/cache-20071008-070730.bpr  
+ Adding & compressing DPE cache...  
+ Size: 23155 bytes
```

■ support bundle cache



## GLOSSARY

---

### A

- alert** A syslog or SNMP message notifying an operator or administrator of a network problem.
- API** Application programming interface. Specification of function-call conventions that defines an interface to a service.

---

### B

- BAC** An integrated solution for data-over-cable service providers to configure and manage broadband modems, and enable and administer subscriber self-registration and activation. BAC is a scalable product capable of supporting millions of devices.
- bandwidth** The difference between the highest and lowest frequencies available for network signals. Also used to describe the rated throughput capacity of a given network medium or protocol.
- broadband** A transmission system that multiplexes multiple independent signals onto one cable. In telecommunications terminology, any channel having a bandwidth greater than a voice-grade channel (4 kHz); in LAN terminology, a coaxial cable on which analog signaling is used.
- Broadband Access Center** *See* BAC.
- Broadband Access Center for Cable** *See* BAC.

---

### C

- cable modem termination system** *See* CMTS.
- CableHome** A CableLabs initiative to develop a standardized infrastructure to let cable operators extend high-quality, value-added services to the home local-area network.
- caching** A form of replication in which information learned during a previous transaction is used to process later transactions.
- CMTS** Cable modem termination system. A component that exchanges digital signals with cable modems on a cable network. The CMTS is usually located in the local office of the cable provider.
- CMTS shared secret** *See* shared secret.

**configuration file** A file containing configuration parameters for the device to be provisioned.

**CPE** Customer premises equipment. Terminating equipment, such as telephones, computers, and modems, that are supplied and installed at a customer location.

---

## D

**DOCSIS** Data Over Cable Service Interface Specification. Defines functionality in cable modems involved in high-speed data distribution over cable television system networks.

**DPE** Device Provisioning Engine. Distributed servers that cache device information and that automatically synchronize with the RDU to obtain the latest configurations and provide BAC scalability.

---

## F

**FQDN** Fully qualified domain name. The full name of a system, rather than just its hostname; for example, cisco is a hostname and www.cisco.com is an FQDN.

---

## I

**Internet Protocol (IP, IPv4)** Network layer for the TCP/IP protocol suite. Internet Protocol (version 4) is a connectionless, best-effort packet switching protocol. Defined in RFC 791.

**IP address** A 32-bit number assigned to hosts using TCP/IP that identifies each sender or receiver of information that is sent in packets across the Internet.

**IPv6** IP version 6. Replacement for the current version of IP (version 4). IPv6 includes support for flow ID in the packet header, which can be used to identify flows. Formerly called IPng (next generation).

---

## K

**KDC** Key Distribution Center. Implements limited Kerberos functionality and is used in the provisioning of PacketCable MTAs.

---

## M

**MAC address** Standardized data-link layer address that is required for every port or device that connects to a LAN. Other devices in the network use these addresses to locate specific ports in the network and to create and update routing tables and data structures. MAC addresses are 6 bytes long and are controlled by IEEE. Also known as hardware address, MAC-layer address, or physical address.

**Media Terminal Adapter** *See* MTA.

<b>MSO</b>	Multiple system operator. A company that operates more than one cable TV or broadband system.
<b>MTA</b>	Equipment at the customer end of a broadband (PacketCable) network.
<b>multiple service operator</b>	<i>See</i> MSO.

---

## N

<b>NAT</b>	Network address translation. Mechanism for reducing the need for globally unique IP addresses. NAT allows an organization with addresses that are not globally unique to connect to the Internet by translating those addresses into globally routable address space. Also known as Network Address Translation.
<b>network administrator</b>	Person responsible for operation, maintenance, and management of a network. <i>See also</i> network operator.
<b>network operator</b>	Person who routinely monitors and controls a network, performing such tasks as reviewing and responding to alarms, monitoring throughput, configuring new circuits, and resolving problems. <i>See also</i> network administrator.
<b>Network Time Protocol</b>	<i>See</i> NTP.
<b>NR</b>	Cisco Network Registrar. A software product that provides IP addresses, configuration parameters, and DNS names to DOCSIS cable modems and PCs, based on network and service policies.
<b>NTP</b>	Network Time Protocol. A protocol designed to synchronize server clocks over a network.

---

## P

<b>PacketCable</b>	A CableLabs initiative for interoperable interface specifications to deliver advanced, real-time multimedia services over a two-way cable network. Built on top of cable modem infrastructure to enable a wide range of multimedia services, such as IP telephony, multimedia conferencing, interactive gaming, and general multimedia applications.
<b>provisioning API</b>	A series of BAC functions that programs can use to make the operating system perform various functions.
<b>provisioning groups</b>	Groupings of devices with a defined set of associated DPE and DHCP servers, based on either network topology or geography.

---

## R

<b>RDU</b>	Regional Distribution Unit. The primary server in the BAC provisioning system, manages generation of device configurations, processes all API requests, and manages the BAC system.
<b>realm</b>	Logical network served by a single Kerberos database and a set of Key Distribution Centers.

<b>realm names</b>	By convention, realm names are all uppercase letters to differentiate the realm from the Internet domain. <i>See</i> realm.
<b>redundancy</b>	In internetworking, the duplication of devices, services, or connections so that, in the event of a failure, the redundant devices, services, or connections can perform the work of those that failed.

---

**S**

<b>selection tags</b>	Selection tags associated with Network Registrar scopes. Define the clients and client classes associated with a scope.
<b>shared secret</b>	A character string used to provide secure communication between two servers or devices.

---

**T**

<b>TFTP</b>	Trivial File Transfer Protocol. Simplified version of File Transfer Protocol (FTP) that allows files to be transferred from one computer to another over a network.
-------------	---

---

**W**

<b>watchdog</b>	A daemon process used to monitor, stop, start, and restart BAC component processes such as the RDU, Tomcat, and the SNMP agent.
-----------------	---



## INDEX

---

### A

#### accessing

##### default password

enable [1-3, 1-4](#)

login [1-3, 1-4](#)

from local host [1-3](#)

from remote host [1-4](#)

#### accessing the CLI

##### default password

enable [1-3, 1-4](#)

login [1-3, 1-4](#)

DPE command modes [1-2](#)

from local host [1-3](#)

from remote host [1-4](#)

#### agent

*See* SNMP, SNMP agent commands

---

### B

#### bundles

clearing [7-1](#)

current cache, bundling [7-2](#)

viewing available outgoing [7-2](#)

---

### C

caution, debugging [4-2, 6-6](#)

#### CLI access

##### default password

enable [1-3, 1-4](#)

login [1-3, 1-4](#)

from local host [1-3](#)

from remote host [1-4](#)

#### CLI help

full help function [2-6](#)

partial help function [2-6](#)

#### cloning support

disabling [4-8](#)

enabling [4-7](#)

closing Telnet connection [2-5](#)

#### command modes

login [1-2](#)

privileged [1-2](#)

prompts [1-2](#)

#### commands

aaa authentication [2-2](#)

clear bundles [7-1](#)

clear cache [3-2](#)

clear logs [6-2](#)

debug dpe cache [6-3](#)

debug dpe connection [6-3](#)

debug dpe dpe-server [6-4](#)

debug dpe event-manager [6-4](#)

debug dpe exceptions [6-5](#)

debug dpe framework [6-5](#)

debug on [6-6](#)

debug service packetcable netsnmp [4-2](#)

debug service packetcable registration [4-3](#)

debug service packetcable registration-detail [4-3](#)

debug service packetcable snmp [4-4](#)

debug service tftp ipv4 | ipv6 [6-7](#)

disable [2-3](#)

dpe docsis shared-secret [3-3](#)

dpe port [3-4](#)

- dpe provisioning-group primary 3-5
- dpe provisioning-group secondary 3-6
- dpe rdu-server port 3-8
- dpe rdu-server source ip 3-9
- dpe rdu-server source port 3-10
- dpe reload 3-10
- dpe shared-secret 3-11
- dpe start 3-11
- dpe start | stop 3-11
- dpe stop 3-11
- enable 2-3
- enable password 2-4
- exit 2-5
- help 2-5
- interface ip pg-communication 3-12
- interface ip provisioning 3-13
- interface ip provisioning fqdn 3-15
- log level 6-8
- no debug 6-8
- no debug dpe cache 6-3
- no debug dpe connection 6-3
- no debug dpe dpe-server 6-4
- no debug dpe event-manager 6-4
- no debug dpe exceptions 6-5
- no debug dpe framework 6-5
- no debug dpe messaging 6-6
- no debug service packetcable netsnmp 4-2
- no debug service packetcable registration 4-3
- no debug service packetcable registration-detail 4-3
- no debug service packetcable snmp 4-4
- no debug service tftp ipv4 | ipv6 6-7
- no dpe docsis shared-secret 3-4
- no dpe provisioning-group primary 3-5
- no dpe provisioning-group secondary 3-7
- no dpe rdu-server source ip 3-9
- no interface ip pg-communication 3-12
- no interface ip provisioning 3-14
- no interface ip provisioning fqdn 3-15
- no service packetcable enable 4-5
- no service packetcable registration encryption enable 4-6
- no service packetcable snmp key-material 4-8
- no service tftp ipv4 | ipv6 allow-read-access 3-16
- no service tftp ipv4 | ipv6 blocksize 3-17
- no service tftp ipv4 | ipv6 verify-ip 3-19
- no snmp-server community 5-2
- no snmp-server contact 5-3
- no snmp-server host 5-4
- no snmp-server inform 5-5
- no snmp-server location 5-6
- no snmp-server udp-port 5-8
- no tacacs-server host 2-17
- password 2-7
- service packetcable enable 4-4
- service packetcable registration encryption enable 4-5
- service packetcable registration kdc-service-key 4-6
- service packetcable registration policy-privacy 4-7
- service packetcable show snmp log 4-9
- service packetcable snmp key-material 4-7
- service packetcable snmp timeout 4-9
- service tftp ipv4 | ipv6 allow-read-access 3-16
- service tftp ipv4 | ipv6 blocksize 3-17
- service tftp ipv4 | ipv6 enabled 3-18
- service tftp ipv4 | ipv6 verify-ip 3-19
- service tod ipv4 | ipv6 enabled 3-20
- show bundles 7-2
- show clock 2-8
- show commands 2-9
- show cpu 2-10
- show device-config 3-21
- show disk 2-11
- show dpe 3-22
- show dpe config 3-23
- show hostname 2-11
- show ip 2-11
- show ip route 2-12
- show log 6-9



- show memory [2-13](#)
- show running-config [2-14](#)
- show tftp files [2-15](#)
- show version [2-15](#)
- snmp-server community [5-2](#)
- snmp-server contact [5-3](#)
- snmp-server host [5-4](#)
- snmp-server inform [5-5](#)
- snmp-server location [5-6](#)
- snmp-server reload [5-7](#)
- snmp-server start | stop [5-7](#)
- snmp-server udp-port [5-8](#)
- support bundle cache [7-2](#)
- tacacs-server host [2-16](#)
- tacacs-server retries [2-17](#)
- tacacs-server timeout [2-18](#)
- uptime [2-18](#)
- configuration commands
  - clearing cache [3-2](#)
  - clearing source interface for RDU [3-9](#)
  - configuring port number [3-4](#)
  - configuring RDU server for DPE [3-8](#)
  - configuring source interface for RDU [3-9](#)
  - configuring source port for RDU [3-10](#)
  - interface
    - clearing provisioning FQDN [3-15](#)
    - disabling for Network Registrar [3-12](#)
    - disabling provisioning [3-14](#)
    - enabling for Network Registrar extensions [3-12](#)
    - enabling provisioning [3-13](#)
    - setting provisioning FQDN [3-15](#)
  - provisioning group, primary
    - clearing [3-5](#)
    - configuring [3-5](#)
  - provisioning group, secondary
    - clearing [3-7](#)
    - configuring [3-6](#)

- restarting DPE [3-10](#)
- shared secret
  - configuring [3-11](#)
  - DOCSIS, clearing [3-4](#)
  - DOCSIS, configuring [3-3](#)
- starting DPE [3-11](#)
- stopping DPE [3-11](#)
- TFTP
  - disabling [3-18](#)
  - disabling blocksize for transfers [3-17](#)
  - enabling [3-18](#)
  - enabling blocksize for transfers [3-17](#)
  - IP address request verification, disabling [3-19](#)
  - IP address request verification, enabling [3-19](#)
  - local file system read request, disabling [3-16](#)
  - local file system read request, enabling [3-16](#)
- viewing device configuration [3-21](#)
- viewing DPE process [3-22](#)
- viewing DPE settings [3-23](#)

---

## D

- debug
  - before debug logging [4-2](#)
  - caution [6-6](#)
  - disabling
    - cache debug logging [6-3](#)
    - connection debug logging [6-3](#)
    - event manager debug logging [6-4](#)
    - exception debug logging [6-5](#)
    - framework debug logging [6-5](#)
    - message debug logging [6-6](#)
    - server debug logging [6-4](#)
    - TFTP transfers debug logging [6-7](#)
  - disabling logging [6-8](#)
  - enabling
    - cache debug logging [6-3](#)
    - connection debug logging [6-3](#)
    - event manager debug logging [6-4](#)

- exception debug logging [6-5](#)
- framework debug logging [6-5](#)
- message debug logging [6-6](#)
- TFTP transfers debug logging [6-7](#)
- enabling logging [6-6](#)
- debug commands, PacketCable
  - disabling
    - netSNMP service [4-2](#)
    - secure registration service [4-3](#)
    - SNMP [4-4](#)
  - enabling
    - netSNMP service [4-2](#)
    - registration detail category [4-3](#)
    - secure registration service [4-3](#)
    - SNMP [4-4](#)
- default DPE password [1-3, 1-4](#)
- deleting log files [6-2](#)
- DHCP, configuring provisioning group [3-5](#)
- DOCSIS shared secret
  - clearing [3-4](#)
  - setting [3-3](#)
- DPE configuration commands
  - See* configuration commands

---

## E

- enabled mode
  - See* command modes
- encryption key, TACACS+ server configuring [2-16](#)
- error message
  - DPE port [3-4](#)
  - unlicensed DPE [2-1](#)
- exiting Telnet connection [2-5](#)

---

## F

- File Transfer Protocol
  - See* FTP
- FQDN
  - interface, disabling provisioning [3-15](#)
  - interface, setting provisioning [3-15](#)
- FTP
  - identifying available outgoing bundles [7-2](#)
- full CLI help function [2-6](#)

---

## G

- generateSharedSecret.sh tool [4-7](#)

---

## H

- help
  - displaying options
    - all [2-6](#)
    - partial [2-6](#)

---

## I

- informs, specifying SNMP notification [5-5](#)
- instance
  - PacketCable service [4-2](#)
  - TFTP service [3-16](#)
  - ToD service [3-20](#)
- interface
  - Network Registrar
    - disabling for [3-12](#)
    - enabling for [3-12](#)
  - provisioning
    - disabling [3-14](#)
    - enabling [3-13](#)

provisioning FQDN

clearing [3-15](#)

setting [3-15](#)

## K

### KDC

security key

KeyGen tool [4-6](#)

setting [4-6](#)

## L

### licenses

about [1-1](#)

installing [1-1](#)

obtaining [1-1](#)

unlicensed DPE [1-1](#)

### logging

*See* log system management commands

log level [6-8](#)

### log system management commands

deleting logs [6-2](#)

disabling debugging [6-8](#)

cache [6-3](#)

connection [6-3](#)

event manager [6-4](#)

exception [6-5](#)

framework [6-5](#)

messaging [6-6](#)

server [6-4](#)

TFTP transfers [6-7](#)

enabling debugging [6-6](#)

cache [6-3](#)

connection [6-3](#)

event manager [6-4](#)

exception [6-5](#)

framework [6-5](#)

messaging [6-6](#)

server [6-4](#)

TFTP transfers [6-7](#)

setting log level [6-8](#)

viewing log entries [6-9](#)

## M

### managing and monitoring the system

*See* system commands

## P

### PacketCable configuration commands

cloning support [4-7](#)

debug disabling

netSNMP service [4-2](#)

registration detail category [4-3](#)

secure registration service [4-3](#)

SNMP [4-4](#)

debug enabling

netSNMP service [4-2](#)

registration detail category [4-3](#)

secure registration service [4-3](#)

SNMP [4-4](#)

debugging [4-2](#)

disabling [4-5](#)

enabling [4-4](#)

### MTA configuration file encryption

disabling [4-6](#)

enabling [4-5](#)

RDU security key [4-8](#)

security key

KDC, setting [4-6](#)

RDU, disabling [4-8](#)

RDU, setting [4-7](#)

setting SNMP privacy policy [4-7](#)

- setting SNMP timeout [4-9](#)
  - viewing SNMP log [4-9](#)
- partial CLI help function [2-6](#)
- policy privacy [4-7](#)
- provisioning group
  - primary
    - clearing [3-5](#)
    - configuring [3-5](#)
  - secondary
    - clearing [3-7](#)
    - configuring [3-6](#)
- provisioning interface
  - disabling [3-14](#)
  - enabling [3-13](#)
  - FQDN
    - clearing [3-15](#)
    - setting [3-15](#)

---

## R

- RDU security key [4-7](#)
- RDU server
  - clearing source interface [3-9](#)
  - clearing source port [3-10](#)
  - configuring port [3-8](#)
  - configuring source interface [3-9](#)
  - configuring source port [3-10](#)
- reloading DPE [3-10](#)
- restarting DPE [3-10](#)

---

## S

- security key
  - clearing [4-8](#)
  - configuring [4-7](#)
  - KDC [4-6](#)

- service instance
  - PacketCable [4-2](#)
  - TFTP [3-16](#)
  - ToD [3-20](#)
- shared secret
  - clearing DOCSIS [3-4](#)
  - configuring [3-11](#)
  - setting DOCSIS [3-3](#)
- show commands
  - determining available disk space [2-11](#)
  - view available outgoing bundles [7-2](#)
  - viewing available commands [2-9](#)
  - viewing available memory [2-13](#)
  - viewing CPU usage [2-10](#)
  - viewing device configuration cached at DPE [3-21](#)
  - viewing DPE hostname [2-11](#)
  - viewing DPE process [3-22](#)
  - viewing DPE settings [3-23](#)
  - viewing files in DPE cache [2-15](#)
  - viewing IP routing table [2-12](#)
  - viewing IP settings [2-11](#)
  - viewing log entries [6-9](#)
  - viewing process statistics [3-22](#)
  - viewing SNMP log [4-9](#)
  - viewing software version [2-15](#)
- SNMP
  - agent, starting [5-7](#)
  - agent, stopping [5-7](#)
  - agent process, reloading [5-7](#)
  - community
    - removing access [5-2](#)
    - setting up access [5-2](#)
  - host
    - removing [5-4](#)
    - specifying [5-4](#)
  - notification
    - inform, specifying [5-5](#)
    - inform, specifying retry [5-5](#)
    - trap, specifying [5-5](#)

- PacketCable
  - log file, viewing [4-9](#)
  - setting timeout [4-9](#)
- system contact
  - clearing [5-3](#)
  - specifying [5-3](#)
- system location
  - clearing [5-6](#)
  - specifying [5-6](#)
- UDP port, configuring [5-8](#)
- SNMP agent commands
  - changing listening UDP port [5-8](#)
  - community access
    - clearing [5-2](#)
    - configuring [5-2](#)
  - configuring listening UDP port [5-8](#)
  - DPE location
    - clearing [5-6](#)
    - configuring [5-6](#)
  - host
    - removing [5-4](#)
    - specifying [5-4](#)
  - notification
    - inform, specifying [5-5](#)
    - inform, specifying retry [5-5](#)
    - trap, specifying [5-5](#)
  - reloading process [5-7](#)
  - starting process [5-7](#)
  - stopping process [5-7](#)
  - system contact
    - clearing [5-3](#)
    - configuring [5-3](#)
- starting and stopping CLI [1-4](#)
- syslog [6-2](#)
- system commands
  - authenticating
    - local user [2-2](#)
    - remote TACACS+ user [2-2](#)
  - changing system password [2-7](#)
  - disabling DPE [2-3](#)
  - enabling DPE [2-3](#)
  - enabling password [2-4](#)
  - exiting Telnet connection [2-5](#)
  - TACACS+ server
    - configuring [2-16](#)
    - removing [2-17](#)
    - setting number of retries [2-17](#)
    - setting timeout [2-18](#)
  - viewing available commands [2-9](#)
  - viewing CPU usage [2-10](#)
  - viewing current configuration [2-14](#)
  - viewing disk usage [2-11](#)
  - viewing help [2-5](#)
  - viewing hostname [2-11](#)
  - viewing IP routing table [2-12](#)
  - viewing IP settings [2-11](#)
  - viewing software version [2-15](#)
  - viewing system operating time [2-18](#)
  - viewing TFTP files in cache [2-15](#)

---

## T

- TACACS+
  - about [2-2](#)
  - configuring server [2-16](#)
  - removing a configured server [2-17](#)
  - server encryption key, configuring [2-16](#)
  - setting number of retries [2-17](#)
  - setting server timeout [2-18](#)
- Telnet
  - authenticating users
    - local [2-2](#)
    - remote TACACS+ [2-2](#)
  - closing connection [2-5](#)
  - connecting to server [1-2](#)

## TFTP

- blocksize for transfers

  - disabling [3-17](#)

  - enabling [3-17](#)

- read requests

  - disabling [3-16](#)

  - enabling [3-16](#)

- verify IP address requests

  - disabling [3-19](#)

  - enabling [3-19](#)

- viewing files in cache [2-15](#)

## TFTP service

- disabling [3-18](#)

- enabling [3-18](#)

timeout, setting SNMP service [4-9](#)

## ToD service

- disabling [3-20](#)

- enabling [3-20](#)

traps, specifying SNMP notifications [5-5](#)

## troubleshooting

- bundles

  - cache [7-2](#)

  - clearing [7-1](#)

  - viewing outgoing [7-2](#)

---

## U

UDP port, specifying [5-8](#)

unlicensed DPE [2-1](#)

---

## V

### version

- view current software [2-15](#)

### voice technology

- See* PacketCable configuration commands