Device Provisioning Engine Command Line Interface

This appendix contains detailed information about the command line interface (CLI) commands that you can use to manage and monitor the device provisioning engine (DPE). They have been grouped into these associations:

System Commands

This section describes the system commands that affect the entire Broadband Provisioning Registrar (BPR). These commands include:

disable

Usage Guidelines   Use the **disable** command only when the DPE shell is already enabled. Once the disable mode is activated, only those commands that allow viewing the system configuration are available.

Examples   This is an example of how to use the **disable** command:

```
dpe# disable
```

enable

Usage Guidelines   Use the **enable** command to enable the current connection to the DPE shell. Viewing system configuration does not require the enabled mode. However, the enabled mode is required to change data.

Examples   This is an example of how to use the **enable** command:

```
dpe# enable
Password:
dpe#
```

Note   Refer to the "password" section on page C-13 for information on setting the password.

exit

Usage Guidelines   This command closes a TELNET or console connection to the DPE.

Examples   This is an example of how to use the **exit** command:

```
# exit
    Connection closed.
```

help

Usage Guidelines   This command displays a help screen to assist you in using the DPE interface. If you need help on a particular command, or to list all available commands, enter either **?** or **system commands** respectively.

Command Types   Two types of help are provided:

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 provided when you enter an abbreviated argument and want to know what arguments match the input. For example, **show stat?**.

Examples   This is an example of how to use the **help** command:

```
# 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 stat?'.)
```

poweroff

Usage Guidelines   This command turns the DPE power off. It removes all current users from the system and shuts the DPE down cleanly. Prior to executing this command, you should verify that there has been no hard drive activity for approximately 30 seconds.

⚠
Caution   Using the power switch on the device can potentially cause partial corruption of the DPE cache. This could result in the DPE needing more time to rebuild its cache the next time it is powered up.

This is an example of how to use the **poweroff** command:

```
# poweroff
    Connection closed.
```

reload

Usage Guidelines   This command reboots the DPE, removing all current users from the system.

⚠
Caution   Using the power switch on the device can potentially cause partial corruption of the DPE cache. This could result in the DPE needing more time to rebuild its cache the next time it is powered up.

Examples   This is an example of how to use the **reload** command:

```
# reload
```

show commands

Usage Guidelines   This command displays all DPE commands available for use by the administrator. The output from this command might differ somewhat depending on which state the DPE is in; enabled or disabled.

Examples   This is an example of how to use the **show commands** command:

```
dpe# show commands
# clear bundles
# clear cache
# clear logs
# clock set <hh:mm:ss> <1-31> <1-12> <yyyy>
# debug dpe cache
# debug dpe connection
```

show running-config

Usage Guidelines   This command displays the current configuration of the DPE.

All of the configuration options are displayed using the actual commands to set the options. If you copy this output, you can paste it back into the configurations for other DPEs modifications. In this way, you can quickly create the configurations for multiple devices needing identical configurations.

To do this, refer to the *Broadband Provisioning Registrar Installation Guide.*

Examples   This is an example of how to use the **show running-config** command:

```
dpe# show running-config
    dpe port 49186
    dpe rdu-server server_x.cisco.com 49187
    hostname host_y
    interface ethernet 0 ip address 10.10.10.1 255.255.255.0
    interface ethernet 0 ip enabled true
    interface ethernet 0 provisioning enabled true
    ip default-gateway 10.10.20.10
    ip domain-name cisco.com
    ip name-server 10.10.10.5 10.10.10.8
    no dpe provisioning-group secondary
    no syslog log-server
```

uptime

Usage Guidelines   This command identifies how long the system has been operational. This information is useful when 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.

Examples   This is an example of how to use the **uptime** command:

```
dpe# uptime
     11:54am up 2:07, 1 users, load average: 0.27, 0.08, 0.02
```

Monitor System Resource Commands

This section describes the commands that you can use to monitor BPR system resources. These commands include:

- show cpu, page C-5
- show disk, page C-5
- show memory, page C-6

show cpu

Usage Guidelines   This command identifies how much of the CPU is being used to perform those BPR activities that are currently running.

Examples   This is an example of how to use the **show cpu** command:

```
dpe# show cpu
    avg-cpu:  %user    %nice    %sys    %idle
                0.00     0.00    0.00   100.00
```

show disk

Usage Guidelines   This command identifies how much of the current disk the DPE is using.

Examples   This is an example of how to use the **show disk** command:

```
dpe# show disk

    Filesystem        Size      Used      Avail      Use%      Mounted on
    /dev/sda1         1.9G      198M      1.6G       11%       /
    /dev/sda5         14M       57M       13M        1%       /opt
```

■ **Network and System Configuration Commands**

show memory

Usage Guidelines   This command identifies how much current memory and swap usage the DPE is using.

Examples   This is an example of how to use the **show memory** command:

```
dpe# show memory

    Mem:      255112K av,     148928K used    106184K free    OK shrd    5428K buff
    Swap:     265032K av,     0K used         265032 free                72468K cached
```

Network and System Configuration Commands

This section describes those commands that are used in network or system configuration. These commands include:

clock set

Usage Guidelines   This command sets the current time, using the 24-hour format, and date used by the DPE. The new time takes effect immediately. The DPE use GMT to keep time. When setting the time you must use GMT to prevent the incorrect time from being returned by the time server.

Syntax Description   When entering the **clock set** command, you must use this syntax:

```
clock set <hh:mm:ss> <day> <month> <yyyy>
```

Where:

- $<hh:mm:ss>$—is the current time in the 24 hour format. For example, 5 a.m. is identified as 05:00:00, and 11:37:30 p.m. is identified as 23:37:30.
- $<day>$—is the day specified as a two digit number.
- $<month>$—is the current month specified as a two digit number.
- $<yyyy>$—is the current year specified using four digits.

Examples   This is an example of how to use the **clock set** command:

dpe# clock set 11:26:00 21 12 2001

```
Fri Dec 21 11:26:00 GMT 2001
```

enable password

Usage Guidelines   This command is used to change the access password for entering into an enabled state on the DPE. You can only change the enable password when you are in the enabled mode. Once the password is changed, all users who, from that point forward, attempt to enter into an enabled mode, will be required to use the new password.

Syntax Description   When entering the **enable password** command, you must use this syntax:

```
enable password <password>
```

Where:

- $<password>$—identifies the password currently in effect.

Examples   These are examples of how to use the **enable password** command:

> **Note**   In these examples, please note the different password messages that might appear.

Example #1:

```
dpe# enable password
    New enable password:
    Retype new enable password:
    Password changed successfully.
```

Results:

These results occur when the password is changed successfully.

Example #2:

```
dpe# enable password
    New enable password:
    Retype new enable password:
    Sorry, passwords do not match.
```

Results:

These results occur when the password is not entered consistently.

Example #3:

```
dpe# enable password cisco
    Password changed successfully
```

Results:

These results occur when the password is changed (using an approach easier for scripting).

hostname

Usage Guidelines   This command is used to set the DPE hostname. The hostname is used primarily for display in the DPE and should correspond to the DNS name for the DPEs IP address. If you change the hostname, you must run the reload command for the changes to take effect.

Syntax Description   When entering the hostname command, you must use this syntax:

hostname *<hostname>*

Where:

- *<hostname>*—identifies the host name of the DPE being addressed.

Examples   This is an example of how to use the **hostname** command:

```
dpe# hostname BPR_DPE_name
    OK (Requires appliance restart "> reload")
```

interface ethernet / ip address

Usage Guidelines   This command sets the IP address of the Ethernet interface being used by the DPE. This IP address must be kept current with a valid gateway. If the gateway is invalid, rebooting could occur and this might cause the DPE to become unavailable on the network. If the IP address is configured incorrectly, use the DPE console port to reconfigure the device with a valid IP.

Note   IP changes do not take effect until the device is restarted.

Syntax Description   When entering the **interface ethernet / ip address** command, you must use this syntax:

```
interface ethernet <0...1> ipaddress <x.x.x.x> <y.y.y.y>
```

Where:

- *<0...1>*—identifies the ethernet interface
- *<x.x.x.x>*—identifies the IP address of the DPE being addressed
- <y.y.y.y>—identifies the subnet mask

Examples   This is an example of how to use the **interface ethernet / ip address** command:

```
dpe# interface ethernet 0 ip address 10.10.10.1 255.255.255.0
    OK (Requires appliance restart "> reload")
```

interface ethernet /ip enabled

Usage Guidelines   This command controls whether or not the Ethernet interface is configured to support IP communications. If both interfaces are disabled, the device will have no network connectivity. Typically, both interfaces are enabled and connected to the network, to provide either redundancy or to use split-networking.

Syntax Description   When entering the **interface ethernet / IP address** command, you must use this syntax:

```
interface ethernet <0...1> ip enabled <true/false>
```

Where:

- *<0...1>*—identifies the Ethernet interface.
- *<true/false>*—indicates whether or not the IP interface on the DPE is enabled.

Examples   This is an example of how to use the **interface ethernet / ip enabled** command:

```
dpe# interface ethernet 0 ip enabled true
    OK (Requires appliance restart "> reload")
```

interface ethernet / provisioning enabled

Usage Guidelines   This command controls whether or not the Ethernet interface(s) is used for provisioning operations. If they are, it is possible to use split-networking techniques to isolate device faced communication from provisioning system communications. Only ports that have provisioning enabled will be used for communication with the DHCP server. If both ports are enabled for provisioning, the DHCP server will send requests to both ports when processing requests from network devices.

Another technique, disabling provisioning on both interfaces, prevents the DPE from communicating with other devices. Doing this can improve performance when the DPE is undertaking a significant cache synchronization with the RDU.

Syntax Description   When entering the **interface ethernet / provisioning enabled** command, you must use this syntax:

```
interface ethernet <0...1> provisioning enabled <true/false>
```

Where:

- *<0...1>*—identifies the Ethernet interface.
- *<true/false>*—indicates whether or not DPE provisioning has been enabled.

Examples   This is an example of how to use the **interface ethernet / provisioning enabled** command:

```
dpe# interface ethernet 0 provisioning enabled true
    OK (Requires DPE restart "> dpr reload")
```

ip default-gateway

Usage Guidelines   This command configures a default gateway onto the DPE. This default gateway must be directly accessible by one of the DPE interfaces otherwise the DPE becomes unavailable.

You must verify this setting before attempting to reboot the DPE. If an incorrect value is configured, it may become necessary to physically connect to the DPEs console port; long distances may make this impractical.

Syntax Description   When entering the **ip default-gateway** command, you must use this syntax:

```
ip default gateway <x.x.x.x>
```

Where:

- *(x.x.x.x)*— is the IP address of the default gateway.

Examples   This is an example of how to use the **ip default-gateway** command:

```
dpe# ip default-gateway 10.10.20.10
    OK (Requires appliance restart "> reload")
```

no ip default-gateway

Usage Guidelines   This command clears DPEs default gateway. If a default gateway is not specified, the DPE is only available with direct network connectivity or through the console port on the DPE.

Examples   This is an example of how to use the **ip default-gateway** command:

```
dpe# no ip default-gateway
   OK (Requires appliance restart "> reload")
```

ip domain-name

Usage Guidelines   This command configures the DPE domain name for use when resolving names for communication operations, such as connecting to the RDU, or using the **ping** and **traceroute** commands. The domain name is also associated with the DPE.

> ✎
>
> **Note**   The changes you introduce through this command take effect immediately.

Syntax Description   When entering the **ip domain-name** command, you must use this syntax:

```
ip domain-name <sub.domain.com>
```

Where:

- *<sub.domain.com>*—identifies the fully qualified domain name (FQDN) of the DPE.

Examples   This is an example of how to use the **ip domain-name** command:

```
dpe# ip domain-name cisco.com
   OK
```

no ip domain-name

Usage Guidelines   This command clears the DPEs domain name. If a domain name is not specified, all remote hostnames must be specified using the fully qualified domain names.

Examples   This is an example of how to use the **no ip domain-name** command:

```
dpe# no ip domain-name
   OK
```

ip name-server

Usage Guidelines This command configures the IP name servers for use on the DPE. These servers are used to resolve hostnames into IP addresses for communication. If an FQDN is used to specify the RDU, you must specify a valid name server for successful communication with the RDU.

✎
Note   The changes you introduce through this command take effect immediately.

Syntax Description When entering the **ip name-server** command, you must use this syntax:

```
ip name-server <x.x.x.x>*
```

Where:

- *<x.x.x.x>*—identifies the IP address of the name-server
- *—allows the entry of multiple IP addresses if multiple name servers are used

Examples This is an example of how to use the **ip name-server** command:

```
dpe# ip name-server 10.10.10.5 10.10.10.8
    OK
```

no ip name-server

Usage Guidelines This command clears the DPE name servers. When no name servers are configured, all communication must be performed using explicit IP addresses.

Examples This is an example of how to use the **no ip name-server** command:

```
dpe# no ip name-server
    OK
```

ip route

Usage Guidelines This command configures a custom route on the DPE. Three parameters are required, as shown in the following syntax description.

Syntax Description When entering the **ip route** command, you must use this syntax:

```
ip route <x.x.x.x> <y.y.y.y> <z.z.z.z>
```

Where:

- *<x.x.x.x>*—identifies the destination network.
- *<y.y.y.y>*—identifies the subnet mask.
- *<z.z.z.z>*—identifies the gateway to use when communicating to this network.

Examples   This is an example of how to use the **ip route** command:

```
dpe# ip route 10.10.10.1 255.255.255.0 10.10.20.10
    OK
```

no ip route

Usage Guidelines   This command clears the specified custom route, but the default route cannot be removed this way. Use the **ip default-gateway** command to change the default route.

Note   The changes you introduce through this command take effect immediately.

Syntax Description   When entering the **no ip route** command, you must use this syntax:

The **no ip route** command must be entered using this syntax:

```
no ip route <x.x.x.x>
```

Where:

- *<x.x.x.x>*—identifies the route to be removed from the system.

Examples   This is an example of how to use the **no ip route** command:

```
dpe# no ip route 10.10.10.1
    OK
```

password

Usage Guidelines   This command changes the current system password. The password is changed automatically for future log ins and for FTP access using the administrator account.

Note   The changes you introduce through this command take effect immediately and users who are current logged on are not disconnected.

Syntax Description   When entering the **password** command, you must use this syntax:

password *<password>*

Where:

- *<password>*—identifies the BPR password that has been assigned to you.

Examples   This is an example of how to use the **password** command:

Example #1

```
dpe# password
    New password:
    Retype new password:
    Password changed successfully.
```

Results:

These results occur when the password is changed successfully.

Example #2

```
dpe# password
    New password:
    Retype new password:
    Sorry, passwords do not match.
```

Results:

These results occur when the password is not entered consistently.

Example #3

```
dpe# password cisco
    Password changed successfully.
```

Results:

These results occur when the password is changed (using an approach easier for scripting).

show clock

Usage Guidelines   This command shows the current system time and date.

Examples   This is an example of how to use the **show clock** command:

```
dpe# show clock
    Fri Dec 21 11:39:31 GMT 2001
```

show hostname

Usage Guidelines   This command show the DPEs hostname.

Examples   This is an example of how to use the **show hostname** command:

```
dpe# show hostname
    hostname = BPR_host
```

show interface ethernet / config

Usage Guidelines   This command shows the configuration for the Ethernet interface. These are the settings that are used when the DPE is rebooted. Use the show interface / stats command to identify the currently configured IP address.

Syntax Description   When entering the **show interface ethernet / config** command, you must use this syntax:

```
show interface ethernet <0...1> config
```

Where:

- *<0...1>*—identifies the ethernet interface number.

Examples   This is an example of how to use the **show interface ethernet / config** command:

```
dpe# show interface ethernet 0 config
    ip address = 10.10.10.1
    netmask = 255.255.255.0
    enabled = true
    for prov = true
```

show interface ethernet / stats

Usage Guidelines   This command shows statistics on the DPE's Ethernet interface.

Syntax Description   When entering the **show interface ethernet / stats** command, you must use this syntax:

```
show interface ethernet <0..1> stats
```

Where:

- *<0...1>*—identifies the ethernet interface number.

Examples   This is an example of how to use the **show interface ethernet / stats** command:

```
dpe# show interface ethernet 0 stats

     eth0    Link encap:Ethernet HWaddr 00:B0:D0:F7:07:C2
             inet addr:10.10.10.1 Bcast:10.10.10.2 Mask:255.255.255.0
             UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
             RX packets:3539 errors:0 dropped:0 overruns:0 frame:0
             TX packets:3233 errors:0 dropped:0 overruns:0 carrier:0
             collisions:0 txqueuelen:100
```

show ip

Usage Guidelines   This command shows the DPEs current general IP settings. For specific interface specific settings, use the show interface commands. These are the settings used when the DPE is rebooted.

Examples   This is an example of how to use the **show ip** command:

```
dpe# show ip
     hostname = BPR_host
     domainname = cisco.com
     gateway = 10.10.20.10
```

show ip route

Usage Guidelines   This command shows the DPEs IP routing table, including any custom routes. The default gateway is indicated by the G flag in the flags column.

Examples   This is an example of how to use the **show ip route** command:

```
dpe# show ip route
```

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
10.10.10.1	10.10.20.10	255.255.255.0	U	0	0	0	eth0
10.10.10.3	10.10.20.25	255.255.255.125	U	0	0	0	lo
10.10.10.9	10.10.20.50	255.255.255.255	UG	0	0	0	eth0

Support and Troubleshooting Commands

This section describes those CLI commands that assist in supporting and troubleshooting the operation of BPR. These CLI commands include:

- clear bundles, page C-17
- host (DNS), page C-17
- host (IP), page C-18

clear bundles

Usage Guidelines   This command clears any existing archived bundles on the DPE. These bundles are created using the support bundles commands and normally contain archived logs and archived state information of use to the Cisco TAC. You must ensure that all bundles are retrieved before using this command because the archived state is lost.

Examples   This is an example of how to use the **clear bundles** command:

```
dpe# clear bundles
    Clearing Cisco support bundles...
    + 90112 bytes cleared.
```

host (DNS)

Usage Guidelines   The **host** (**DNS**) command looks up the IP address of a DPE host using DNS. You can use this command to verify that the RDU's IP address can be successfully resolved. If a system domain name is specified, the host command will automatically attempt searching that domain as well when resolving host names.

Syntax Description   When entering the **host (DNS)** command, you must use this syntax:

host *<dns>*

Where:

- *<dns>*—identifies the DNS server.

Examples   This is an example of how to use the **host (DNS)** command:

```
> host www.cisco.com
    www.cisco.com has address 198.133.219.25
```

host (IP)

Usage Guidelines   The **host (IP)** command looks up the hostname for the specified IP address, and is used to verify that an IP address is correctly reverse-mapped in DNS. The IP address is reverse looked up on each of the configured name servers until the IP address is found.

Syntax Description   When entering the **host (IP)** command, you must use this syntax:

host <*x.x.x.x*>

Where:

- <*x.x.x.x*>—identifies the IP address being pinged.

Examples   This is an example of how to use the **host (IP)** command:

```
dpe# host 10.10.10.1
    10.20.20.20.IN-ADDR.ARPA domain name pointer www.cisco.com
```

ping (domain)

Usage Guidelines   The **ping (domain)** command pings the specified host, using the host and domain name. Press the **Enter** key to stop the process. The **ping** command is useful in diagnosing network connectivity problems.

Syntax Description   When entering the **ping (domain)** command, you must use this syntax:

ping <*host.domain*>

Where:

- <*host.domain*>—identifies the host being pinged.

Examples   This is an example of how to use the **ping (domain)** command:

```
dpe# ping www.cisco.com

% Press <enter> to stop.

PING www.cisco.com (10.10.10.1) from 10.10.20.20 : 56(84) bytes of data.

64 bytes from 10.10.20.20:                icmp_seq=0 ttl=241 time=105.113 msec
64 bytes from 10.10.20.20:                icmp_seq=1 ttl=241 time=99.947 msec
64 bytes from 10.10.20.20:                icmp_seq=2 ttl=241 time=99.951 msec

Stopped.
```

ping (IP)

Usage Guidelines   The **ping (IP)** command pings the specified host, using the hosts IP address. Press the **Enter** key to stop the process. Ping is useful in diagnosing network connectivity problems.

Syntax Description   When entering the **ping (IP)** command, you must use this syntax:

```
ping <x.x.x.x>
```

Where:

- <*x.x.x.x*> identifies the IP addesss of the host.

Examples   This is an example of how to use the **ping (IP)** command:

dpe# ping 10.10.20.20

```
    % Press <enter> to stop.
    PING www.cisco.com (10.10.10.1) from 10.10.20.20 : 56(84) bytes of data.

    64 bytes from 10.10.20.20:              icmp_seq=0 ttl=241 time=101.005 msec
    64 bytes from 10.10.20.20:              icmp_seq=1 ttl=241 time=149.904 msec
    64 bytes from 10.10.20.20:              icmp_seq=2 ttl=241 time=119.886 msec
    Stopped.
```

show bundles

Usage Guidelines   This command shows all bundles currently available in the outgoing directory. These bundles are created using the **support bundle** commands and are accessible from the DPEs FTP server.

Examples   This is an example of how to use the **show bundles** command:

Example #1

dpe# show bundles
```
    /outgoing/state-20010817-113741.bpr
    /outgoing/cache-20010817-113745.bpr
```

Results:

These results occur when there are bundles currently archived.

Example #2

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

Results:

These results occur when no bundles are currently archived.

support bundle cache

Usage Guidelines This command bundles the current DPE cache. This is useful when archiving the cache for delivery to Cisco Technical Assistance Center. Once created, the bundle is available from the FTP server's outgoing directory.

Examples This is an example of how to use the **support bundle cache** command:

```
dpe# support bundle cache
    Creating cache bundle for Cisco support...
    + /outgoing/cache-20010817-113745.bpr
    + Adding DPE cache...
    + Adding supporting files...
    + Compressing cache bundle...
    + Size: 4045 bytes, 409600 uncompressed
```

support bundle state

Usage Guidelines This command bundles the current DPE state. This is useful when archiving configuration and log files for the DPE for delivery to Cisco Technical Assistance Center. Once created, the bundle is available from the FTP server's outgoing directory.

> **Note** The state bundle is the first bundle you should send to Cisco when the DPE is not operating correctly.

Examples This is an example of how to use the **support bundle state** command:

```
dpe# support bundle state
    Creating state bundle for Cisco support...
    + /outgoing/state-20010817-113741.bpr
    + Adding SysLog(s)...
    + Adding DPE logs...
    + Adding Appliance logs...
    + Adding configuration files...
    + Compressing state bundle...
    + Size: 90004 bytes, 2488320 uncompressed
```

> **Note** In addition to the **support bundle state** command available on the DPE, there is a script in the client/bin directory on the RDU. This script, called bundleState.sh is used to bundle the system state, including logs, when sending information to the TAC.

support shell

This command enters the DPE into a support shell mode, where low-level access to the device is possible. Most BPR users do not have low-level access to the system and, without the user's password, Cisco TAC cannot access the user's system to perform diagnostics. Consequently, the access password is a derivative of the system password. This affords security to the user while allowing the Technical Assistance Center to provide sufficient technical support.

traceroute (domain)

Usage Guidelines   This command identifies the route, using the host and domain names, to a specified host including each hop between the DPE and the destination host. This command is useful when verifying communication and determining if gateways and routes are correctly configured.

Syntax Description   When entering the **traceroute (domain)** command, you must use this syntax:

```
traceroute <domain>
```

Where:

- *<domain>*—identifies the host's domain name.

Examples   This is an example of how to use the **traceroute (domain)** command:

```
dpe# traceroute BPR_host.cisco.com
    Press <enter> to stop.
    traceroute to BPR_host.cisco.com (10.10.10.1), 30 hops max, 38 byte packets
    1 10.10.10.1 0.454 ms 0.239 ms 0.230 ms
    Stopped.
```

traceroute (IP)

Usage Guidelines   This command identifies the route, using the hosts IP address, to a specified host including each hop between the DPE and the destination host. This command is useful when verifying communication and determining if gateways and routes are correctly configured.

Syntax Description   When entering the **traceroute (IP)** command, you must use this syntax:

```
traceroute <x.x.x.x>
```

Where:

- *<x.x.x.x>*—identifies the IP address of the host.

Examples   This is an example of how to use the **traceroute (IP)** command:

```
dpe# traceroute 10.10.10.1
    Press <enter> to stop.
    traceroute to 10.10.10.1 (10.10.10.1), 30 hops max, 38 byte packets
    1 10.10.10.1 0.454 ms 0.239 ms 0.230 ms
    Stopped.
```

DPE Configuration Commands

This section describes the configuration commands that affect Broadband Provisioning Registrar. These commands include:

clear cache

Usage Guidelines   This command erases the entire DPE cache and resets the server back to a clean state. When the DPE is restarted, it will connect to the RDU and rebuild the cache from the information stored in the RDU's database. You should only clear the cache when the DPE is having a major problem, such as when having the DPE rebuild its cache, a process which may take an extended amount of time to complete.

Examples   This is an example of how to use the **clear cache** command:

Example #1

```
dpe# clear cache
    Clearing DPE cache...
    + 417792 bytes cleared.
```

Results:

These results occur when the cache is successfully cleared.

Example #2

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

Results:

These results occur when the cache has not yet been stopped.

Example 3

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

Results:

These results occur when cache has already been cleared.

dpe port

Usage Guidelines   This command sets the port number that the DPE will use to communicate with the Network Registrar extension points. Normally, you can leave this port number intact unless there is a need to change it for firewall reasons.

> **Note**   The changes you introduce through this command do not take effect until the DPE is restarted.

Syntax Description   When entering the **dpe port** command, you must use this syntax:

dpe# dpe port *<port>*

Where:

- *(port)*—identifies the port number assigned for connecting to the DPE.

Examples   This is an example of how to use the **dpe port** command:

```
dpe# dpe port 49186
    OK (Requires DPE restart "> dpe reload")
```

dpe provisioning-group primary

Usage Guidelines   This command sets the primary provisioning group(s) that the DPE server will use. Most DPEs are configured with one primary provisioning group, however, selecting multiple provisioning groups might allow multiple DHCP servers to use this DPE.

When assigning new provisioning groups that have a high number of devices, restarting the DPE can take an extensive amount of time. This is due to the fact that the cache for each provisioning group has to be synchronized or, for new provisioning groups, completely rebuilt.

Under normal situations, provisioning groups should only be changed when the DPE is first deployed on the network.

> **Note**   Provisioning group changes do not take effect until the DPE is restarted.

Syntax Description   When entering the **dpe provisioning-group primary** command, you must use this syntax:

```
dpe provisioning-group primary <name>*
```

Where:

- *(name)*—identifies the assigned primary provisioning group
- *—allows the entry of multiple IP addresses if multiple provisioning groups are used

Examples   This is an example of how to use the **dpe provisioning-group primary** command:

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

dpe provisioning-group secondary

Usage Guidelines   This command sets the secondary provisioning group(s) to be used by the DPE server. Most DPEs are configured with one primary provisioning group, however, selecting multiple provisioning groups might allow multiple DHCP servers to use this DPE. 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 high number of devices, restarting the DPE can take an extensive amount of time. This is due to the fact that the cache for each provisioning group has to be synchronized or, for new provisioning groups, completely rebuilt.

Under normal situations, provisioning groups should only be changed when the device is first deployed on the network.

> **Note**   Provisioning group changes do not take effect until the DPE is restarted.

Syntax Description   When entering the **dpe provisioning-group secondary** command, you must use this syntax:

```
dpe provisioning-group secondary <name>*
```

Where:

- *(name)*—identifies the assigned secondary provisioning group
- *—allows the entry of multiple IP addresses if multiple provisioning groups are used

Examples   This is an example of how to use the **dpe provisioning-group secondary** command:

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

dpe rdu-server (FQDN)

Usage Guidelines   This command identifies the RDU to connect this DPE to. The FQDN specifies the associated port.
Normally, you configure the RDU on the default port but, for security reasons, you could configure it to
run on a nonstandard port.

> ✎
>
> **Note**   The dpe rdu-server changes do not take effect until the DPE is restarted.

Syntax Description   When entering the **dpe rdu-server** command, you must use this syntax:

```
dpe rdu-server <host.domain.com> <port>
```

Where:

- *<host.domain.com>*—identifies the fully qualified domain name (FQDN) of the RDU.
- *<port>*—identifies the RDU port that is associated with the IP address entered above.

Examples   This is an example of how to use the **dpe rdu-server** command:

```
dpe# dpe rdu-server rdu.cisco.com 49187
   OK (Requires DPE restart "> dpe reload")
```

dpe rdu-server (IP)

Usage Guidelines   This command assigns the RDU to connect this DPE to. Specify this as the IP address or FQDN with the
associated port. Normally, the RDU resides on the default port, but for security reasons the port might
be configured to something non-standard. This command will not take effect until the next time the DPE
is restarted.

This command identifies the RDU to connect this DPE to. Specify this as the IP address of the associated
port.

> ✎
>
> **Note**   The dpe rdu-server changes do not take effect until the DPE is restarted.

Syntax Description   When entering the **dpe rdu-server** command, you must use this syntax:

```
dpe rdu-server <x.x.x.x> <port>
```

Where:

- *\<x.x.x.x>*—identifies the IP address or fully qualified domain name of the RDU.

- *\<port>*—identifies the RDU port that is associated with the IP address entered above.

Examples   This is an example of how to use the **dpe rdu-server** command:

```
dpe# dpe rdu-server 10.10.20.1 49187
    OK (Requires DPE restart "> dpe reload")
```

dpe reload

Usage Guidelines   This command restarts the DPE, which must already be operating before performing the reload operation. If the DPE has not stopped within 60 seconds, the DPE agent forces the DPE to stop and an alert message, indicating this has occurred, is displayed. After that message appears the DPE is restarted.

Examples   This is an example of how to use the **dpe reload** command:

Example #1

```
dpe# dpe reload
    BPR Device Provisioning Engine has been restarted
```

Results:

These results occur when the DPE is restarted successfully.

Example #2

```
dpe# dpe reload
    BPR Device Provisioning Engine is not running
```

Results

These results occur when the DPE is not currently running.

dpe shared-secret

Usage Guidelines   This command sets the shared secret used for communications with the RDU. Communications will fail if the shared secret, between the two servers, is not the same.

✎
Note   Changes introduced by this command do not take effect until the DPE is restarted.

Syntax Description   When entering the **dpe shared-secret** command, you must use this syntax:

```
dpe shared-secret <secret>
```

Where:

- *<secret>*—identifies the RDU shared secret.

Examples   This is an example of how to use the **dpe shared-secret** command:

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

dpe start

Usage Guidelines   This command starts the DPE, and you can only use it 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. In addition, check the log again periodically to make sure no additional errors have occurred.

Examples   This is an example of how to use the **dpe start** command:

Example #1

```
dpe# dpe start
    BPR Device Provisioning Engine has been started
```

Results:

These results occur when the DPE starts successfully.

Example #2

```
dpe# dpe start
    BPR Device Provisioning Engine is already running
```

Results:

These results occur when the DPE is already running.

dpe stop

Usage Guidelines   This command stops the DPR and can only be performed when the DPE is running. If the DPE has not stopped within 60 seconds, the DPE agent forces the DPE to stop and an alert message, indicating this has occurred, is displayed.

■ **DPE Configuration Commands**

Examples   This is an example of how to use the **dpe stop** command:

Example #1

```
dpe# dpe stop
    BPR Device Provisioning Engine has been stopped
```

Results:

These results occur when the DPE stops successfully.

Example #2

```
dpe# dpe stop
    BPR Device Provisioning Engine is not running
```

Results:

These results occur when the DPE is already stopped.

no dpe provisioning-group primary

Usage Guidelines   This command clears configured primary provisioning groups. If primary provisioning groups are not available, you can use the DPE as either a backup for other provisioning groups or as a TFTP file cache.

✎

Note   Changes introduced through this command do not take effect until the DPE is restarted.

Examples   This is an example of how to use the **no dpe provisioning-group primary** command:

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

no dpe provisioning-group secondary

Usage Guidelines   This command clears configured secondary provisioning groups. If secondary provisioning groups are not available, the DPE can be used as a primary in other provisioning groups.

✎

Note   Changes introduced through this command do not take effect until the DPE is restarted.

Examples   This is an example of how to use the **no dpe provisioning-group secondary** command:

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

show dpe

Usage Guidelines   This command identifies the current state of the DPE process. It checks to see if the DPE is running and displays the state of the process. It does not indicate if the DPE is running successfully, only that the process itself is currently executing.

Examples   These examples show how to use the **show dpe** command:

Example #1

```
dpe# show dpe
    BPR Device Provisioning Engine is running

    Version BPR 2.0 (Build Number).
    Caching 193102 device configs and 19 external files.
    Received 2401012 cache hits and 20324 misses.
    Connection status is Ready.
    Running for 42 days 1 hours 46 mins 19 secs.
```

Results:

These results occur when the DPE is not running.

Example #2

```
dpe# show dpe
    BPR Device Provisioning Engine is running
```

Results:

These results occur when the DPE is running.

show dpe config

Usage Guidelines   This command shows the current DPE settings used when it is restarted. It is used to verify that all executed commands have been executed successfully.

Note   The shared secret is protected data that is not normally displayed on the screen and as such, it is not displayed when the configuration information appears.

Examples   This is an example of how to use the **show dpe config** command:

```
dpe# show dpe config
    dpe port = 49186
    rdu host = host.cisco.com
    rdu port = 49187
    primary groups = Default
    secondary groups = [no value]
```

upgrade

Usage Guidelines   This command is used whenever the DPE requires a new software upgrade, using uploaded upgrade files. These files, which end in the file extension .bpr, should be FTP'd into the incoming directory. The upgrade process scans all available updates and determines which ones are required. It separates the files into these categories:

- invalid—These are the files that do not match the format required by the DPE.

- not applicable—The DPE does not accept these patches because either the update is from an earlier version, or because the difference between versions (the current and updated versions) is too great.

- applicable—The DPE can upgrade using these files.

Examples   This is an example of how to use the **upgrade** command:

```
dpe# upgrade
    Starting BPR upgrade process
    + Scanning for available updates...
    + Determining applicable updates...
    + Compiling list of updates...

    Invalid update files:
    - update-FOOBAR.bpr

    Updates not applicable:
    - update-invalid.bpr ... BPR version 3.0 Beta-1

    Applicable updates:
    1 update-valid.bpr ..... BPR version 2.0 FC-2

    Select update [exit]: 1

    Updating with BPR version 2.0 FC-2
    + Starting update executor...
    [SNIP]
    + Update succesful!
```

Log System Management Commands

This section describes the system commands that affect how you can manage Broadband Provisioning Registrar logs. These commands include:

clear logs

Usage Guidelines   This command remove historic (out of date) log files that exist on the system. These files include:

- DPE log files
- hardware log files
- syslog files

Over time, historic log files accumulate within the DPE. The **support bundle state** command is used to bundle these logs. Cisco recommends that you create a bundle before clearing logs. This will ensure that no necessary files are accidently lost.

Examples   This is an example of how to use the **clear logs** command:

```
dpe# clear logs
   Clearing historic log files...
   + Removing 1 DPE log files...
   + No more historic logs.
```

no syslog log-server

Usage Guidelines   This command clears the settings assigned to the syslog server. When the syslog mode is set to either both or remote, clearing the syslog log server results in the log mode being automatically set back to local until a new log server is configured.

Examples   This is an example of how to use the no syslog log-server command:

```
dpe# no syslog log-server
   OK (Requires appliance restart "> reload")
```

show log

Usage Guidelines   This command shows all recent log entries for the DPE. These logs contain general DPE process information, including logging all system errors or severe problems. Check this log, when the system is experiencing difficulties. If the log contains insufficient information, enable the trace logging function and experiment with the different categories related to the problem.

Syntax Description   When entering the **show log** command, you must use this syntax:

```
show log <1.999>
```

Where:

- *<1..999>*—identifies the number of log entries that you want displayed.

Examples   This is an example of how to use the **show log** command:

```
dpe# show log
   2001 12 21 11:22:20 CDT: %BPR-5: Notification DPE: Device Provisioning Engine starting
   up
```

show log last

Usage Guidelines   This command shows the specified number of recent log entries for the DPE appliance. Check this log, when the system is experiencing difficulties and, if the log contains insufficient information, enable the trace logging function and experiment with the different categories related to the problem.

Syntax Description   When entering the **show log last** command, you must use this syntax:

```
show syslog last <1.999>
```

Where:

- *<1..999>*—identifies the number of log entries that you want displayed.

Examples   This is an example of how to use the **show log last** command:

```
dpe# show log last 1
    2001 12 21 11:28:17 CDT: %BPR-5: Notification DPE: Device Provisioning Engine starting
    up
```

show log run

Usage Guidelines   This command displays the running DPE log, which starts showing all messages logged to the DPE log. The command continues to run until you press **Enter**. Check this log when the system is experiencing difficulties. If the log contains insufficient information, enable the trace logging function and experiment with the different categories related to the problem.

Examples   This is an example of how to use the **show log run** command:

```
dpe# show log run
    Press <enter> to stop.
    2001 12 21 11:43:43 CDT: %BPR-5: Notification DPE: Device Provisioning Engine starting
    up
    2001 12 21 11:43:44 CDT: %BPR-6: Info DPE: Attempt to connect to RDU
    BPR_host.cisco.com:49187 failed;
    2001 12 21 11:43:44 CDT: %BPR-6: Info TFTP: Ready to service requests

    Stopped.
```

show syslog

Usage Guidelines   This command shows all recent DPE syslog entries. The syslog file contains information about the general DPE system, including alerts from various processes related to the DPE. Check this log when the system is experiencing difficulties. If the log contains insufficient information, enable the trace logging function and experiment with the different categories related to the problem.

■ Log System Management Commands

Examples   This is an example of how to use the **show syslog** command:

```
dpe# show syslog
    Dec 21 11:43:42 host BPR: %DPE_AGENT-6-6041: 10.10.10.1 - The DPE has started
```

show syslog last

Usage Guidelines   This command shows the specified number of recent DPE syslog entries, including information about the general DPE system including alerts from various processes related to the DPE. Check this log when the system is experiencing difficulties. If the log contains insufficient information, enable the trace logging function and experiment with the different categories related to the problem.

Syntax Description   When entering the **show syslog** command, you must use this syntax:

```
show syslog last <1.999>
```

Where:

• *<1..999>*—identifies the number of syslog entries that you want displayed.

Examples   This is an example of how to use the show **syslog last** command:

```
dpe# show syslog last 1
Dec 21 11:43:42 host BPR: %DPE_AGENT-6-6041: 10.10.10.1 - The DPE has started
```

show syslog run

Usage Guidelines   This command shows the running syslog, which starts showing all messages logged to the syslog. The command continues to run until you press **Enter**. The syslog contains information about the general DPE system including alerts from various processes related to the DPE. Check this log when the system is experiencing difficulties. If the log contains insufficient information, enable the trace logging function and experiment with the different categories related to the problem.

Examples   This is an example of how to use the **show syslog run** command:

```
dpe# show syslog run
    Press <enter> to stop.
    Dec 21 11:47:00 host BPR: %DPE_AGENT-6-6042: 10.10.10.1 - The DPE has stopped

    Stopped.
```

syslog log-server

Usage Guidelines   This command configures the log-server to send syslog messages whenever the syslog mode is set to either both or remote. When the mode is set to local changing this setting has no effect.

Under major failure conditions, syslog messages would normally be sent to a remote server since it may be impossible to connect to the DPE or to logon to the local syslog file.

Syntax Description   When entering the **syslog log-server** command, and you must use this syntax:

```
syslog log-server <x.x.x.x>
```

Where:

- *<x.x.x.x>*—identifies the log servers IP address

Examples   This is an example of how to use the **syslog log-server** command:

```
dpe# syslog log-server 10.10.10.1
    OK (Requires appliance restart "> reload")
```

syslog mode

Usage Guidelines   Configure the mode to log syslog messages. Syslog messages are normally configured to go to a remote server. The available modes are:

- both—messages go to the remote syslog server and the local file
- local—messages only go to the local file
- remote—messages only go to the remote syslog server

If one setting results in remote messages is chosen, but without a log-server configured, messages continue to be logged locally.

Syntax Description   When entering the **syslog mode** command, you must use this syntax:

```
syslog mode <both/local/remote>
```

Where:

- *<both>*—indicates that both the local and remote locations will received these syslog messages
- *<local>*—identifies the local location that will receive these syslog messages
- *<remote>*—indicates the remote location that will receive these syslog messages

Examples   This is an example of how to use the **syslog mode** command:

```
dpe# syslog mode both
    OK (Requires appliance restart "> reload")
```

debug on

Usage Guidelines   This command enables the debug function which can be helpful when troubleshooting possible system problems.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug on
```

no debug

Usage Guidelines   This command disables the debug function.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug on
```

debug dpe cache

Usage Guidelines   This command enables the DPE cache debug logging, which involves messages pertaining to the DPE cache including:

- logging requests for cache entries
- updates to the cache
- other interactions by DPE sub-systems

Debugging is typically enabled for certain categories of calls to ensure that the system is not overloaded.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe cache
```

no debug dpe cache

Usage Guidelines   This command disables DPE cache debug logging.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe cache
```

debug dpe connection

Usage Guidelines This command enables the debugging of the DPE connection, which logs communication subsystem status and error messages. This is useful for finding communication problems between the DPE and the RDU. Debugging is typically enabled for certain categories of calls to ensure that the system is not overloaded with excessive trace messages.

Examples This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe connection
```

no debug dpe connection

Usage Guidelines This command disables the debugging of the DPE connection.

Examples This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe connection
```

debug dpe dpe-server

Usage Guidelines This command enables debugging of the DPE server, which involves logging messages about the overall status and issues of the DPE server. Debugging is typically enabled for certain categories of calls to ensure that the system is not overloaded with excessive trace messages.

Examples This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe dpe-server
```

no debug dpe dpe-server

Usage Guidelines This command disables debugging of the DPE server.

Examples This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe dpe-server
```

debug dpe event-manager

Usage Guidelines   This command enables debugging of the DPE event manager, which involves logging messages and conditions showing the state of the event manager. Debugging is typically enabled for certain categories of calls to ensure that the system is not overloaded with excessive trace messages.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe event-manager
```

no debug dpe event-manager

Usage Guidelines   This command disables debugging of the DPE event manager.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe event-manager
```

debug dpe events

Usage Guidelines   This command enables the debugging of DPE events, which involves logging details about all events passing through the system. Enabling this command might result in an extensive amount of data being logged, especially during times of high cache volatility. Debugging is typically enabled for certain categories of calls to ensure the system is not overloaded with excessive trace messages.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe events true
```

no debug dpe events

Usage Guidelines   This command disables the debugging of DPE events.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe events
```

debug dpe exceptions

Usage Guidelines   This command enables or disables the debugging of DPE exceptions, which involves logging full stack traces for exceptions occurring during system operation. When unusual situations occur, where the system is apparently corrupt or behaving very badly, running this command can reveal very valuable information for Cisco TAC support. Debugging is typically enabled for certain categories of calls to ensure that the system is not overloaded with excessive trace messages.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe exceptions
```

no debug dpe exceptions

Usage Guidelines   This command disables the debugging of DPE exceptions.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe exceptions
```

debug dpe framework

Usage Guidelines   This command enables the debugging of the DPE framework, which involves logging information about the DPE server's underlying framework. This underlying infrastructure provides for all of the various servers in BPR. Debugging is typically enabled for certain categories of calls to ensure that the system is not overloaded with excessive trace messages.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe framework
```

no debug dpe framework

Usage Guidelines   This command disables the debugging of the DPE framework.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe framework
```

debug dpe messaging

Usage Guidelines   This command enables the debugging of DPE messaging, which involves logging details about the DPEs messaging subsystem. This subsystem is used primarily for communication between the DPE and the RDU. Debugging is typically enabled for certain categories of calls to ensure that the system is not overloaded with an excessive number of messages.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe messaging
```

no debug dpe messaging

Usage Guidelines   This command disables the debugging of DPE messaging.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe messaging
```

debug dpe tftp

Usage Guidelines   This command enables the debugging of TFTP messages.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# debug dpe tftp
```

no debug dpe tftp

Usage Guidelines   This command disables the debugging of TFTP messages.

Examples   This command requires no special syntax, and you enter it as shown in this example:

```
dpe# no debug dpe tftp
```