

# Service Processor (GSP or MP) User Guide

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# About This Document

This book describes procedures, concepts, and principles for using the management processor (GSP or MP) on HP servers that support nPartitions.

This preface has the following sections:

## Intended Audience

This document is for customers using the management processor (MP) on the HP servers that support nPartitions, including the following servers: rp7400, rp7420, rx7620, rp8400, rp8420, rx8620, and HP Superdome server.

## Publishing History

The publishing history below identifies the edition dates of this manual. Updates are made to this publication on an unscheduled, *as needed*, basis.

**Table 1 Publishing History Details**

Document Manufacturing Part Number	Operating Systems Supported	Supported Product Versions	Publication Date
A5201-90017	HP-UX, Windows, Linux, OpenVMS	rp7400, rp7420, rx7620, rp8400, rp8420, rx8620, Superdome	October 2004
A5201-90017-ed2	HP-UX, Windows, Linux, OpenVMS	rp7400, rp7420, rx7620, rp8400, rp8420, rx8620, Superdome	October 2009

## Document Organization

This guide is divided into the following chapters.

- Chapter 1      *Overview of the Service Processor* Use this chapter to learn about the features and specifications of the Service Processor.
- Chapter 2      *Using the Service Processor* Use this chapter to learn how to access and use the Service Processor.
- Appendix A    *MP Commands* This appendix provides the MP commands available for the Service Processor.
- Appendix B    *Extensible Firmware Interface* This appendix provides information about the Extensible Firmware Interface (EFI) environment.
- Appendix C    *Boot Console Handler* This appendix provides information about the Boot Console Handler (BCH) environment.

# Typographic Conventions

This document uses the following conventions.



**WARNING!** A warning lists requirements that you must meet to avoid personal injury.



**CAUTION:** A caution provides information required to avoid losing data or avoid losing system functionality.



**NOTE:** A note highlights useful information such as restrictions, recommendations, or important details about HP product features.

*Book Title* The title of a book. On the Web and on the Instant Information CD, it may be a hot link to the book itself.

**KeyCap** The name of a keyboard key or graphical interface item (such as buttons, tabs, and menu items). Note that **Return** and **Enter** both refer to the same key.

*Emphasis* Text that is emphasized.

**Bold** Text that is strongly emphasized.

**Bold** The defined use of an important word or phrase.

ComputerOut Text displayed by the computer.

**UserInput** Commands and other text that you enter.

Command A command name or qualified command phrase.

Option An available option.

Screen Output Example of computer screen output.

[ ] The contents are optional in formats and command descriptions. If the contents are a list separated by |, you must select one of the items.

{ } The contents are required in formats and command descriptions. If the contents are a list separated by |, you must select one of the items.

... The preceding element may be repeated an arbitrary number of times.

| Separates items in a list of choices.

## HP-UX Release Name and Release Identifier

Each HP-UX 11i release has an associated release name and release identifier. The `uname(1)` command with the `-r` option returns the release identifier. Table 2 shows the releases available for HP-UX 11i.

**Table 2 HP-UX 11i Releases**

Release Identifier	Release Name	Supported Processor Architecture
B.11.11	HP-UX 11i v1	PA-RISC
B.11.20	HP-UX 11i v1.5	Intel® Itanium®
B.11.22	HP-UX 11i v1.6	Intel Itanium
B.11.23	HP-UX 11i v2.0	Intel Itanium



## Related Documents

You can find other information on HP server hardware management, Microsoft® Windows®, and diagnostic support tools in the following publications.

**Website for HP Technical Documentation:** <http://hp.com>

**Server Hardware Information:** <http://hp.com/hpux/hw/>

**Windows Operating System Information** You can find information about administration of the Microsoft Windows operating system at the following websites, among others:

- [http://hp.com/windows\\_nt/](http://hp.com/windows_nt/)
- <http://www.microsoft.com/technet/>

**Diagnostics and Event Monitoring: Hardware Support Tools** Complete information about HP's hardware support tools, including online and offline diagnostics and event monitoring tools, is at the <http://hp.com/hpux/diag/> website. This site has manuals, tutorials, FAQs, and other reference material.

**Web Site for HP Technical Support:** <http://us-support2.external.hp.com/>

**Books about HP-UX Published by Prentice Hall** The <http://www.hp.com/hpbooks/> Web site lists the HP books that Prentice Hall currently publishes, such as HP-UX books including:

- *HP-UX 11i System Administration Handbook*  
[http://www.hp.com/hpbooks/prentice/ptr\\_0130600814.html](http://www.hp.com/hpbooks/prentice/ptr_0130600814.html)
- *HP-UX Virtual Partitions*  
[http://www.hp.com/hpbooks/prentice/ptr\\_0130352128.html](http://www.hp.com/hpbooks/prentice/ptr_0130352128.html)

HP Books are available worldwide through bookstores, online booksellers, and office and computer stores.

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Include the document title, manufacturing part number, and any comment, error found, or suggestion for improvement you have concerning this document.



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# 1 Overview of the Service Processor

This chapter provides an introduction to the service processor on HP cell-based servers.

## Introduction to Service Processor Interfaces

The service processor (MP or GSP) utility hardware is an independent support system for nPartition servers. It provides a way for you to connect to a server complex and perform administration or monitoring tasks for the server hardware and its nPartitions.

The main features of the service processor include:

- Command Menu
- nPartition Consoles
- Console Logs
- Chassis Code Viewer (on HP 9000 servers with HP PA-8700 processors) or Event Log Viewer (on servers based on the HP sx1000 chipset)
- Virtual Front Panels (live displays of nPartition and cell states)

These features are described in more detail in “Service Processor (MP or GSP) Features” (page 11).

The service processor is available when the cabinet has standby power even if the main (48-volt) cabinet power switch is turned off.

Access to the service processor is restricted by user accounts. Each user account is password protected and provides a specific level of access to the server complex and service processor commands.

Multiple users can independently interact with the service processor because each service processor login session is private. However, some output is mirrored: the Command menu and each nPartition console permit one interactive user at a time and mirrors output to all users accessing those features. Likewise, the service processor mirrors live chassis codes to all users accessing the Live Chassis Logs feature (or the Live Events feature).

Up to 32 users can simultaneously login to the service processor through the network (customer LAN) interface, and they can independently manage nPartitions or view the server complex hardware states.

Two additional service processor login sessions can be supported by the local and remote serial ports. These allow for serial port terminal access (through the local RS-232 port) and external modem access (through the remote RS-232 port).

In addition to providing enhanced features necessary for managing a multiple-nPartition server, the service processor (MP or GSP) on nPartition servers is similar to the service processor on other HP servers.

For example, the service processor manages the complex profile, which defines nPartition configurations as well as complex-wide settings for the server.

The service processor also controls power, reset, and TOC capabilities; displays and records system events (or chassis codes); and can display detailed information about the various internal subsystems.

## Service Processor (MP or GSP) Features

The following list describes the primary features available through the service processor on nPartition-capable HP servers.

### Command Menu

The Command menu provides commands for system service, status, and access configuration tasks.

To enter the Command menu, enter **CM** at the service processor Main menu. To exit the service processor

Command menu, enter **MA** or enter **^b (Control-b)** to return to the service processor Main menu.

See “MP Commands” (page 27) for details.

Service processor commands are restricted based on the three levels of access: Administrator, Operator, and Single Partition User. See “Service Processor Accounts and Access Levels” (page 13) for details.

## Consoles

Each nPartition in a server complex has its own console.

Enter **CO** at the service processor Main menu to access the nPartition consoles. To exit the console, enter **^b (Control-b)**.

See “nPartition Console Features” (page 20) for details.

Console output for each nPartition is reflected to all users currently accessing the nPartition console.

One console user can have interactive access to each nPartition console, and all other users of the console have read-only access. To gain write access for a console, enter **^e cf (Control-e c f)**.

Each nPartition console provides access to:

- The nPartition system boot environment: either BCH or EFI.

The BCH or EFI system boot environment is available when the nPartition is active but has not yet loaded or booted an operating system.

- The Boot Console Handler (BCH) environment is provided on HP 9000 servers only (PA-RISC servers).
- The Extensible Firmware Interface (EFI) is provided on HP Integrity servers only (Intel® Itanium®-based servers).

- HP-UX console for the nPartition.

The nPartition console provides console login access to HP-UX and serves as `/dev/console` for the nPartition.

## Console Logs

Enter **CL** from the service processor Main menu to access the console logs menu. To exit the console log, enter **^b (Control-b)**.

Each nPartition has its own console log, which stores a history of console output for the nPartition, including boot output, system boot environment (BCH or EFI) activity, and any HP-UX console login activity.

See “Viewing Console Logs” (page 23) for details.

The console log provides a limited history; it is a circular log file that overwrites the oldest information with the most recent.

All console activity is recorded in the console log regardless of whether any service processor users are connected to the console.

## Chassis Logs and Event Logs

On both HP 9000 systems and HP Integrity systems, you can view real-time (live) system events and can view prior events that have been stored in a log history. Use the SL (“show logs”) option from the service processor Main Menu to view events/chassis codes.

- On nPartition-capable HP 9000 servers with HP PA-8700 processors, SL provides the Chassis Log Viewer. The chassis log viewer includes options for viewing activity (level 1 and greater) logs, error (level 2 and greater) logs, and live logs (which optionally may be filtered by cell, nPartition, or alert level).
- On nPartition-capable servers based on the HP sx1000 chipset, SL provides the Event Log Viewer. The event log viewer includes options for viewing: forward progress (level 1 and greater) logs, system event (level 2 and greater) logs, and live logs (which optionally may be filtered by cell, nPartition, or alert level).

See “Viewing Chassis Codes or Event Logs” (page 24) for details.

## Virtual Front Panel (VFP) for an nPartition

The Virtual Front Panel (VFP) for each nPartition displays real-time boot activity and details about all cells assigned to the nPartition. The VFP display automatically updates as cell and nPartition status changes. A system-wide VFP also is provided.

Enter **VFP** at the Main menu to access the View Front Panel menu. To exit a Virtual Front Panel, enter **^b (Control-b)**.

See “Virtual Front Panel (VFP) nPartition Views” (page 25) for details.

## Service Processor Accounts and Access Levels

To access the service processor interface for a server complex, you must have a user account that enables you to login to the service processor.

Each server complex has its own set of service processor user accounts, which are defined for the server complex, and may differ from accounts on other complexes.

Service processor user accounts have a specific login name, password, and access level.

The three user account access levels are:

### Administrator Account

Provides access to all commands and to all nPartition consoles and Virtual Front Panels.

Can manage user accounts (using the Command menu **SO** command) and can reconfigure various service processor settings.

### Operator Account

Provides access to a subset of commands and to all nPartition consoles and Virtual Front Panels.

### Single Partition User Account

Provides access to a restricted subset of commands and provides access to the nPartition console for a single nPartition. However, it allows the user to view the Virtual Front Panel for any nPartition.

Can only execute commands that affect the assigned nPartition.

Cannot execute commands that could potentially affect multiple nPartitions or affect the service processor configuration.

Each user account can either permit repeated login sessions (for a “multiple use” account), or restrict the account to only log in once (for “single use” accounts).

---

## 2 Using the Service Processor

### Accessing and Using the Service Processor

This section describes how to login to the service processor (MP or GSP) for an nPartition server complex.

You can connect to the service processor for a server complex by using the following methods:

- Connecting through the customer LAN port by using `telnet` if login access through the customer LAN is enabled for the service processor.

On HP Superdome servers, the customer LAN hardware is labeled "Customer LAN". On HP rp8400 servers, it is "GSP LAN". On HP rp7405/rp7410 servers, it is the only LAN port on the core I/O.

Use `telnet` to open a connection with the service processor, and log in by entering the account name and corresponding password.

- Connecting through the local RS-232 port using a direct serial cable connection.

On HP Superdome servers, the local RS-232 port is labeled "Local RS-232". On HP rp8400 servers, it is the "Local Console" port. On HP rp7405/rp7410 servers, it is the 9-pin D-shaped connector (DB9) labeled "Console".

- Connecting through the remote RS-232 port using external model (dial-up) access if remote modem access is configured.

On HP Superdome servers, the remote RS-232 port is labeled "Remote RS-232". On HP rp8400 servers, it is the "Remote Console" port. On HP rp7405/rp7410 servers, it is the DB9 connector labeled "Remote".

## Example 2-1 Overview of a Service Processor Login Session

---

The following output shows a sample login session for a server with the service processor hostname of "hpsys-s".

```
> telnet hpsys-s
Trying...
Connected to hpsys-s.rsn.hp.com.
Escape character is '^]'.
Local flow control off
```

MP login: *Username*

MP password:

Welcome to the

S Class 16K-A

Management Processor

(c) Copyright 1995-2001 Hewlett-Packard Co., All Rights Reserved.

Version 0.23

MP MAIN MENU:

```
CO: Consoles
VFP: Virtual Front Panel
CM: Command Menu
CL: Console Logs
SL: Show chassis Logs
HE: Help
X: Exit Connection
```

MP>

---

### Procedure 2-1 Logging in to a Service Processor

This procedure connects to and logs in to the service processor (MP or GSP) for a server complex by using `telnet` to access the customer LAN.

If connecting through the local RS-232 port, skip Step 1 (instead establish a direct-cable connection) and begin with Step 2.

1. Use the `telnet` command on a remote system to connect to the service processor for the server complex.

You can connect directly from the command line, for example:

```
telnet sdome-g
```

or run `telnet` first, and then issue the `open` command (for example, `open sdome-g`) at the `telnet>` prompt.

All `telnet` commands and escape options are supported while you are connected to the service processor.

2. Login using your service processor user account name and password.

```
GSP login: Username
```

```
GSP password: Password
```



3. Use the service processor menus and commands as needed and log out when done.  
To log out, select the Exit Connection menu item from the Main menu (enter **x** at the GSP> prompt or MP> prompt).  
You also can terminate a login session by issuing the telnet escape key sequence **^]** (enter: **Control-right bracket**) and entering **close** at the telnet> prompt.



---

**NOTE:** If possible, you should log off of any consoles and menus before terminating your telnet session.

If accessing an OS on an nPartition, log out of the OS before exiting the console and service processor sessions. If you do not log off, an open OS login session remains available to any other service processor users.

---

## Using Service Processor Menus

The service processor (MP or GSP) has a set of menus that give you access to various commands, consoles, log files, and other features.

See “Navigating through Service Processor Menus” (page 18) for details on using these menus.

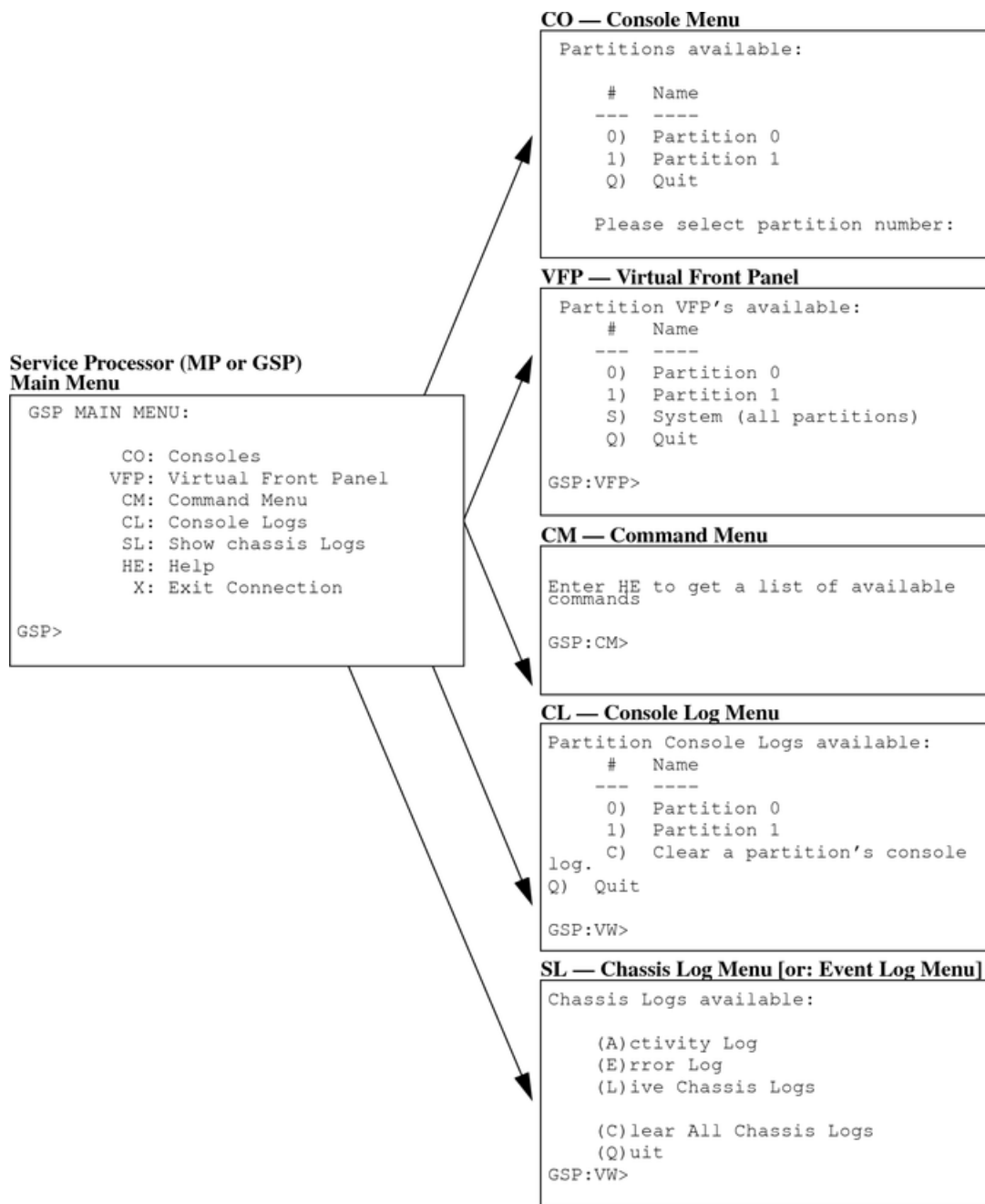
The following menus are available from the service processor Main menu:

- Console Menu—Provides access to nPartition consoles for the server.
- Virtual Front Panel Menu—Provides a Virtual Front Panel for each nPartition (or for the entire server complex).
- Command Menu—Includes service, status, system access, and other commands.
- Console Log Viewer Menu—Allows access to the console logs for nPartitions.
- Chassis or Event Log Viewer Menu—Allows access to the server chassis code logs (on HP 9000 servers with HP PA-8700 processors) or event logs (on servers based on the HP sx1000 chipset). Chassis logs and event logs are functionally equivalent. They record system activities, however, the event logs are more descriptive.
- Help Menu—Provides online help on a variety of service processor topics and on all service processor Command menu commands.

These menus provide a central point for managing an nPartition server complex outside of an operating system.

The service processor menus provide many tools and details not available elsewhere. More administration features also are available from the nPartition system boot environments (BCH or EFI), the nPartition tools, and various operating system commands. Figure 2-1 shows the Service Processor menus.

**Figure 2-1 Overview of Service Processor (MP or GSP) Menus**



## Navigating through Service Processor Menus

Figure 2-2 (page 20) shows the commands and options for returning to the service processor Main menu and for ending a service processor login session.

The following list also includes tips for navigating through service processor menus and using various menu features:

- **Control-b**  
Exit current console, console log, chassis log, or Virtual Front Panel.  
When accessing the Command menu, an nPartition console, any log files, or any Virtual Front Panel (VFP), you can exit and return to the Main menu by typing **^b (Control-b)**.
- **Q (or lower-case q)**  
Exit or cancel current menu prompt.

Enter **Q** (or lower-case **q**) as a response to any menu prompt to exit the prompt and return to the previous sub-menu.

You can do this throughout the service processor menus, including the console menus, various command menu prompts, and the log and VFP menus.



**NOTE:** From the Command menu prompt (**GSP : CM>** or **MP : CM>**) you must enter **MA** (not **Q**) to return to the Main menu. However, you can enter **Q** or **q** to cancel any command.

---

- **Control-]**

Escape the service processor connection and return to the telnet prompt.

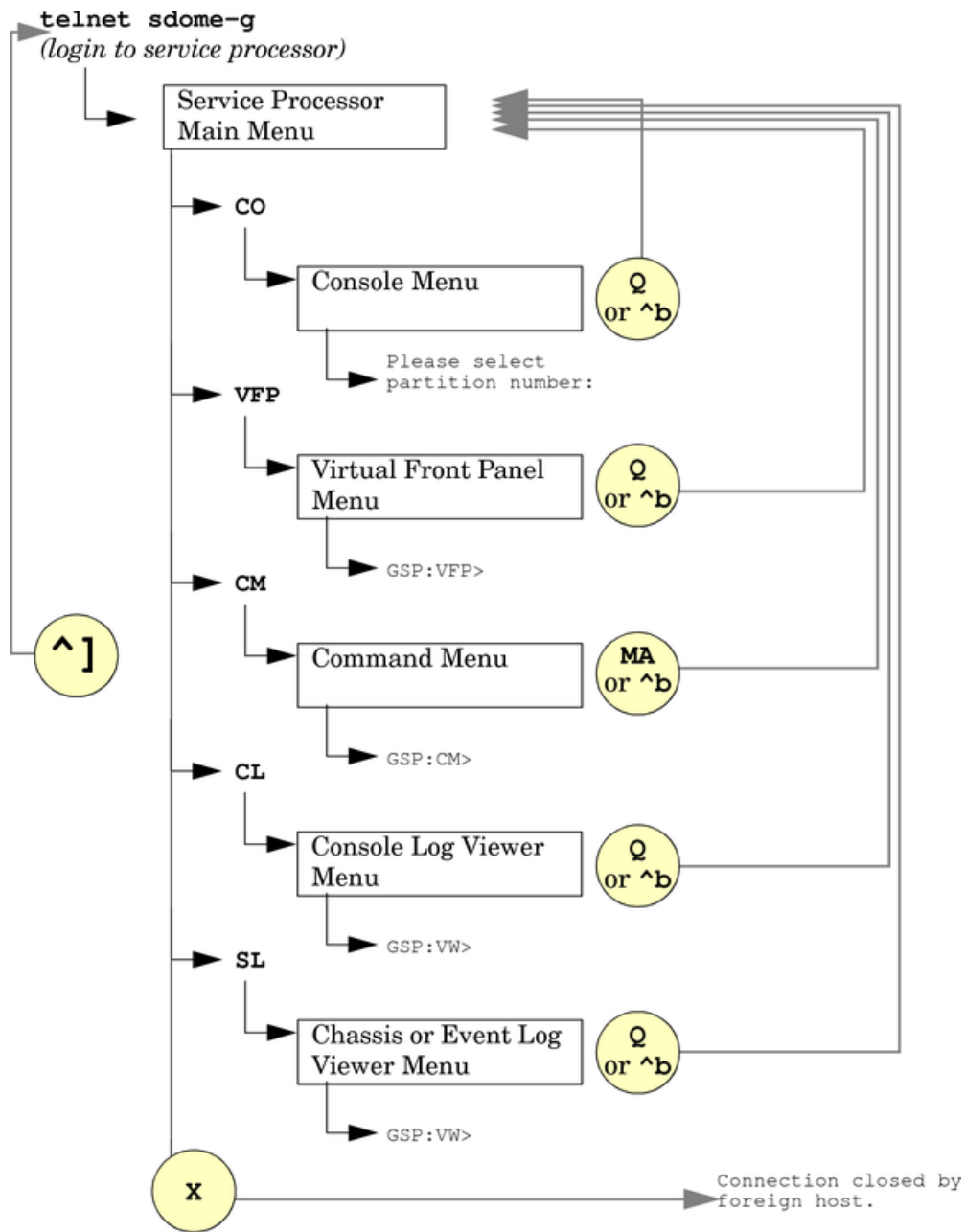
At any time during your `telnet` connection to a service processor, you can enter the `^]` (**Control-right bracket**) escape sequence.

This key sequence returns you back to the `telnet` prompt. At the `telnet>` prompt you can use the following commands:

- `?` – Print telnet command help information
- `close` – Close the current connection
- `quit` – Exit telnet

To return to the service processor connection, enter **return** (or **enter**) one or more times.

**Figure 2-2 Navigating through Service Processor (MP or GSP) Menus**



## nPartition Console Features

The service processor Console menu provides access to all nPartition consoles within the server complex.

Enter **CO** from the service processor Main menu to access an nPartition console. To exit the nPartition console, enter **^b (Control-b)** to return to the Main menu.

Each nPartition in a complex has a single console. However, multiple connections to the console are supported, allowing multiple users to simultaneously view the console output. Only one connection per console permits write-access.

To gain console write access to an nPartition console, enter **^ecf (Control-e c f)**.

Each nPartition console can display a variety of information about the nPartition, including:

- Partition startup, shutdown, and reset output.
- The system boot environment: either Boot Console Handler (BCH, on HP 9000 servers) or Extensible Firmware Interface (EFI, on HP Integrity servers).

The system boot environment is available when the nPartition has not yet booted an operating system and has completed Power-On Self Tests (POST) and completed nPartition rendezvous to become active.

- The HP-UX login prompt and “console shell access”.



**CAUTION:** When you use an nPartition console connection to login to an operating system running on the nPartition, logout from the operating system when you have finished using it before you enter **^B (Control-b)** to disconnect from the nPartition console.

If you fail to logout from the operating system console session, then any other service processor user who has permission to access the nPartition could connect to the nPartition console and use the open login session.

Disconnecting from an nPartition console does not close any open operating system login sessions.

## nPartition Console Access versus Direct OS Login

You may need to consider the following factors when deciding whether to interact with an nPartition through the service processor console interface or a direct operating system (OS) login session.

- Whether you want to log your activity to the console log for the nPartition (all console activity is stored at least temporarily).
- Whether the OS is installed, booted, and properly configured on the nPartition.

If the OS is not installed on an nPartition, you should access the nPartition console (through the service processor) in order to install and configure the OS.

You should use the network to login to the OS running on an nPartition when you do not need to use service processor features and do not want to record a log of your activity.

Before an OS has booted, the service processor nPartition consoles are the primary method of interacting with an nPartition.

After an nPartition has booted the OS, you should be able to connect to the nPartition by using `telnet`, `rlogin`, or `ssh` to remotely login to HP-UX or Linux or by using remote desktop for a remote Windows session.

## Network Configuration for a Service Processor

This section describes how to list and configure the network settings for service processor (MP or GSP) hardware. These settings are used for connections to the service processor and are not used for HP-UX networking.

Details on configuring service processor networking are given in the procedure “Configuring Service Processor Network Settings” (page 23).

The service processor utility hardware on HP Superdome servers has two network connections: the customer LAN and private LAN.

The service processor on other (non-Superdome) nPartition-capable servers does not have a private LAN; only a customer LAN connection is provided.

Features of service processor LANs are provided in the following list.

- **Customer LAN for Service Processor** The customer LAN is the connection for login access to the service processor menus, consoles, commands, and other features.

All HP nPartition servers have a customer LAN.

On HP Superdome servers, the customer LAN port is labeled “Customer LAN”. On HP rp8400 servers, it is “GSP LAN”. On HP rp7405/rp7410 servers, it is the only LAN connection on each core I/O board.

- **Private LAN for Service Processor (Superdome Only)** The private LAN connects to the Superdome service support processor (SSP) workstation, also called the service management station (SMS).

Only Superdome servers have a private LAN. Do not use the private LAN on the HP sx1000 chipset-based Superdome servers.

To configure service processor network settings, you can use the LC command from the Command menu.

To list the current service processor network configuration use the LS command.

The following examples show service processor LAN status for several HP nPartition servers.

**Service Processor LAN Status: HP rp7405/rp7410, HP rp8400, HP rx7620, HP rx8620**

```
MP:CM> LS
Current configuration of MP customer LAN interface
MAC address   : 00:30:6e:05:19:ac
IP address    : 15.99.84.140    (0x0f63548c)
Hostname      : redxii-c
Subnet mask   : 255.255.255.0  (0xffffffff00)
Gateway       : 15.99.84.254  (0x0f6354fe)
Status        : UP and RUNNING
AutoNegotiate : Enabled
Data Rate     : 100 Mb/s
Duplex        : Half
Error Count   : 0
Last Error    : none
MP:CM>
```

**HP Superdome Service Processor LAN Status**

```
GSP:CM> LS
Current configuration of GSP customer LAN interface
MAC address   : 00:10:83:27:04:5a
IP address    : 15.99.49.129   0x0f633181
Name          : feshd5-u
Subnet mask   : 255.255.248.0  0xffffffff800
Gateway       : 15.99.49.254   0x0f6331fe
Status        : UP and RUNNING

Current configuration of GSP private LAN interface
MAC address   : 00:a0:f0:00:83:b1
IP address    : 192.168.2.15   0xc0a8020f
Name          : priv-05
Subnet mask   : 255.255.255.0  0xffffffff00
Gateway       : 192.168.2.100  0xc0a80264
Status        : UP and RUNNING
GSP:CM>
```

**Default Service Processor Network Settings** Table 2-1 and Table 2-2 list the default customer LAN and private LAN network settings for nPartition servers. Only Superdome servers have a private LAN.

**Table 2-1 Default Configuration for Service Processor Customer LAN (All nPartition Servers)**

Customer LAN IP Address	192.168.1.1
Customer LAN Host Name	gsp0
Customer LAN Subnet Mask	255.255.255.0
Customer LAN Gateway	192.168.1.1

**Table 2-2 Default Configuration for Service Processor Private LAN (HP Superdome Servers Only)**

Private LAN IP Address	192.168.2.10
Private LAN Host Name	priv-00

**Table 2-2 Default Configuration for Service Processor Private LAN (HP Superdome Servers Only)**  
(continued)

Private LAN Subnet Mask	255.255.255.0
Private LAN Gateway	192.168.2.10

### Procedure 2-2 Configuring Service Processor Network Settings

This procedure (Command menu, **LC** command) configures the service processor customer LAN and private LAN network settings from the service processor Command menu.

1. Connect to the service processor for the complex, login as an administrator, and enter **CM** to access the Command menu.

If a service processor is at the default configuration (including default network settings), you can connect to it using either of these methods:

- Establish a direct serial cable connection through the service processor local RS-232 port, a 9-pin D-shaped connector (DB9).  
On HP Superdome servers, this port is labeled "Local RS-232". On HP rp8400 servers, it is the "Local Console" port. On HP rp7405/rp7410 servers, use the DB9 connector that is labeled "Console".
- Access a PC or workstation on the same subnet as the service processor, modify its network routing tables to include the default customer LAN IP address, and **telnet** to the service processor. The procedure to modify networking and connect is:
  1. Access a PC or workstation on the same subnet as the service processor.
  2. Modify the network routing tables for the PC or workstation by using the **route add 192.168.1.1 ClientName** command, where *ClientName* is the network name of the PC or workstation.

From a PC command prompt: **route add 192.168.1.1 ClientName**

Log in as **root** on an HP-UX workstation and use this command:

```
/usr/sbin/route add 192.168.1.1 ClientName
```

After you reconfigure the service processor network settings, you can remove these network routing table changes with the **route delete...** command.

3. Enter this command to confirm the new network connection to the service processor:  
**ping 198.168.1.1 -n 2**
4. Use the **telnet 192.168.1.1** command from the PC or workstation to connect to the service processor.

2. From the service processor Command menu, enter **LS** to list the current network settings, and if needed use the **LC** command to reconfigure the network settings for the service processor.

You must be logged in as an administrator to use the **LC** command.

The **LC** command enables you to modify the customer LAN and/or the private LAN configuration.

You can cancel all changes to the service processor LAN configuration at any time by replying **Q** to any of the **LC** command prompts.

## Viewing Console Logs

Each nPartition in a server complex has a separate console log that stores a record of the most recent nPartition console activity.

To access the console log for an nPartition, enter **CL** from the service processor Main menu and select which nPartition console log you want to view. To exit the console log viewer, enter **^b** (**Control-b**) to return to the Main menu.

When viewing an nPartition console log, enter **P** to view the previous page of the console log, or enter **N** (or **Enter**) to view the next page.

When you enter a console log viewer it displays the oldest data in the log first and allows you to page through the log to view the more recently recorded activity.

Each console log is a circular log file that records approximately 30 to 40 pages of data. All nPartition console activity is written to this log file, regardless of whether a user is connected to the nPartition console.

As a console log is written the oldest data in the log is overwritten by current data, as needed, so that the last 30 to 40 pages of console output always is available from the console log viewer.

## Viewing Chassis Codes or Event Logs

The event log and chassis code viewers enable you to view chassis codes or event logs that are issued throughout the entire server complex.



---

**NOTE:** On HP 9000 servers with HP PA-8700 processors, the equivalent of event logs is chassis codes.

---

To enter the event log viewer enter **SL** at the service processor Main menu. To exit the viewer, enter **^b** (Ctrl-B) to return to the Main menu.

Event logs are data that communicate information about system events from the source of the event to other parts of the server complex. Event log data indicates what event has occurred, when and where it happened, and its severity (the alert level).

All event logs pass from the event source through the service processor. The service processor takes any appropriate action and then reflects the event logs to all running nPartitions. If an nPartition is running event monitoring software, it may also take action based on the event logs by sending an email notification.

Event logs can indicate failures or errors.

Hardware, software, and firmware events may emit event logs as a result of a failure or error, a major change in system state, or basic forward progress. For example: a fan failure, an HPMC, the start of a boot process, hardware power on or off, and test completion all result in event logs being emitted.



---

**NOTE:** The front panel attention LED for each nPartition server cabinet is automatically turned on when one or more event logs of alert level 2 or higher have not yet been viewed by the administrator. When this attention LED is on, entering the chassis log viewer turns the LED off.

---

You can remotely check the on/off status of this attention LED by using the **PS** command, **G** option, from the service processor Command menu.

---

On nPartition servers, event logs are recorded in the server complex activity log (for events of alert level 0 or alert level 1) or the error log (for events alert level 2 or higher).

```
GSP> SL
```

```
Chassis Logs available:
```

```
(A)ctivity Log
(E)rror Log
(L)ive Chassis Logs
```



```
(C)lear All Chassis Logs
(Q)uit
```

GSP:VW> **L**

Entering Live Log display

```
A)lert filter
C)ell filter
P)artition filter
U)nfiltered
V)iew format selection
^B to Quit
```

Current filter: ALERTS only

## Log Viewing Options: Activity, Error, and Live Chassis Logs

Enter the chassis log viewer by entering **SL** at the service processor (MP or GSP) Main menu, and select from these viewers:

- **Activity Log Viewer** Allows you to browse recorded event logs of alert level 0 or 1.
- **Error Log Viewer** Allows you to browse recorded event logs of alert level 2 or higher.
- **Live Chassis Logs Viewer** Displays event logs in real time as they are emitted.

By default, the live event log viewer has the Alert filter enabled, which causes it to display only the events of alert level 3 or higher.

To view all event logs in real-time, enter **U** for the Unfiltered option.

You can also filter the live codes by cell (**C**) or nPartition (**P**). Cell filter: displays event logs emitted by a specific cell in the server complex. Partition filter: displays event logs emitted by hardware assigned to a specific nPartition.

When viewing event log logs, enter **v** to change the display format. The viewers can show event logs in text format (**T**), keyword format (**K**), or raw hex format (**R**).

## Virtual Front Panel (VFP) nPartition Views

The Virtual Front Panel (VFP) provides ways to monitor the boot or run the status of each cell in an nPartition and of the nPartition itself. The VFP provides information that is typically displayed on the LCD of a non-partitionable server.

The VFP presents a real-time display of activity on the selected nPartition(s) and it automatically updates when the cell and nPartition status change.

To access the VFP feature, enter **VFP** from the service processor Main menu. To exit the VFP, enter **^b (Control-b)** to return to the Main menu.

When you access a Virtual Front Panel, you can either select the nPartition whose VFP you want to view or select the system VFP to view summary information for all nPartitions in the server complex.

E indicates error since last boot

Partition 0	state	Activity	
-----		-----	
Cell(s)	Booting:	710	Logs
#	Cell state	Activity	
-	-----	-----	
0	Early CPU selftest	Cell firmware test	232 Logs
1	Early CPU selftest	Processor test	230 Logs
2	Memory discovery	Physical memory test	242 Logs

GSP:VFP (^B to Quit) >



# A MP Commands

## Command Reference: Service Processor (MP or GSP) Commands

Table A-1 lists the commands available from the service processor command menu (the MP : CM> or GSP : CM> prompt).

The following categories of commands are available:

- “Service Commands — Service Processor (MP or GSP)” (page 27).
- “Status Commands — Service Processor (MP or GSP)” (page 27).
- “System and Access Configuration Commands — Service Processor (MP or GSP)” (page 28).

Some commands are restricted to users with Operator or Administrator authority. Also note that the available set of commands may differ depending on the utility revision level and server hardware model.

For details on these commands, use the help (HE : HeLp) feature at the service processor Main menu. Enter the command name at the MP : HELP or GSP : HELP prompt for syntax, restrictions, and other information.

**Table A-1 Service Processor (MP or GSP) Command Reference**

Command	Description
<b>Service Commands — Service Processor (MP or GSP)</b> Commands for general server complex administration and nPartition management.	
BO	Boot an nPartition past Boot is Blocked (BIB)
DF	Display FRU information of an entity
MA	Return to the Main menu
MR	Modem reset
PCIOLOAD	Activate/deactivate a PCI card
PE	Power entities on or off
RE	Reset entity
RR	Reset an nPartition for reconfiguration; the nPartition remains inactive, in the shutdown for reconfig state
RS	Reset an nPartition
TC	Send a TOC signal to an nPartition
TE	Broadcast a message to all users of the MP Command Handler
VM	Margin the voltage in a cabinet
WHO	Display a list of MP connected users
<b>Status Commands — Service Processor (MP or GSP)</b> Commands for displaying hardware and nPartition information.	
CP	Display nPartition cell assignments
HE	Display the list of available commands
IO	Display IO chassis/cell connectivity
LS	Display LAN connected console status
MS	Display the status of the modem
PS	Display detailed power and hardware configuration status
SYSREV	Display revisions of all firmware entities in the complex

**Table A-1 Service Processor (MP or GSP) Command Reference** *(continued)*

Command	Description
<b>System and Access Configuration Commands — Service Processor (MP or GSP)</b> Commands for managing server complex accounts, security, and nPartition configuration	
PARPERM	Restrict/unrestrict nPartition Reconfiguration Privilege
PD	Modify default nPartition for this login session
RL	Rekey Complex Profile locks
SA	Display and set (enable/disable) MP remote access methods
SO	Configure security options and access control (user accounts and passwords)
XD	MP diagnostics and reset

---

# B Extensible Firmware Interface (EFI)

## EFI System Boot Environment

On HP Integrity servers the system boot environment is provided by the Extensible Firmware Interface (EFI).

EFI is available through an nPartition console interface before an operating system has booted and after the cells have booted and performed nPartition rendezvous (to make the nPartition active).

The EFI environment enables you to manage and configure the operating system boot process for an nPartition. You also can configure some settings for the local nPartition, get information about the nPartition and its server complex, and perform other tasks such as reboot.

The EFI boot environment has two main components:

- **EFI Boot Manager** — A menu-driven interface that enables you to configure and select boot options. From the EFI Boot Manager you can load an operating system, reset the nPartition, and configure various system boot and console options.
- **EFI Shell** — A command-line system boot interface that you can enter by selecting the **EFI Shell** option from the EFI Boot Manager Menu.

Enter `exit` to leave the EFI Shell interface and return to the EFI Boot Manager Menu.

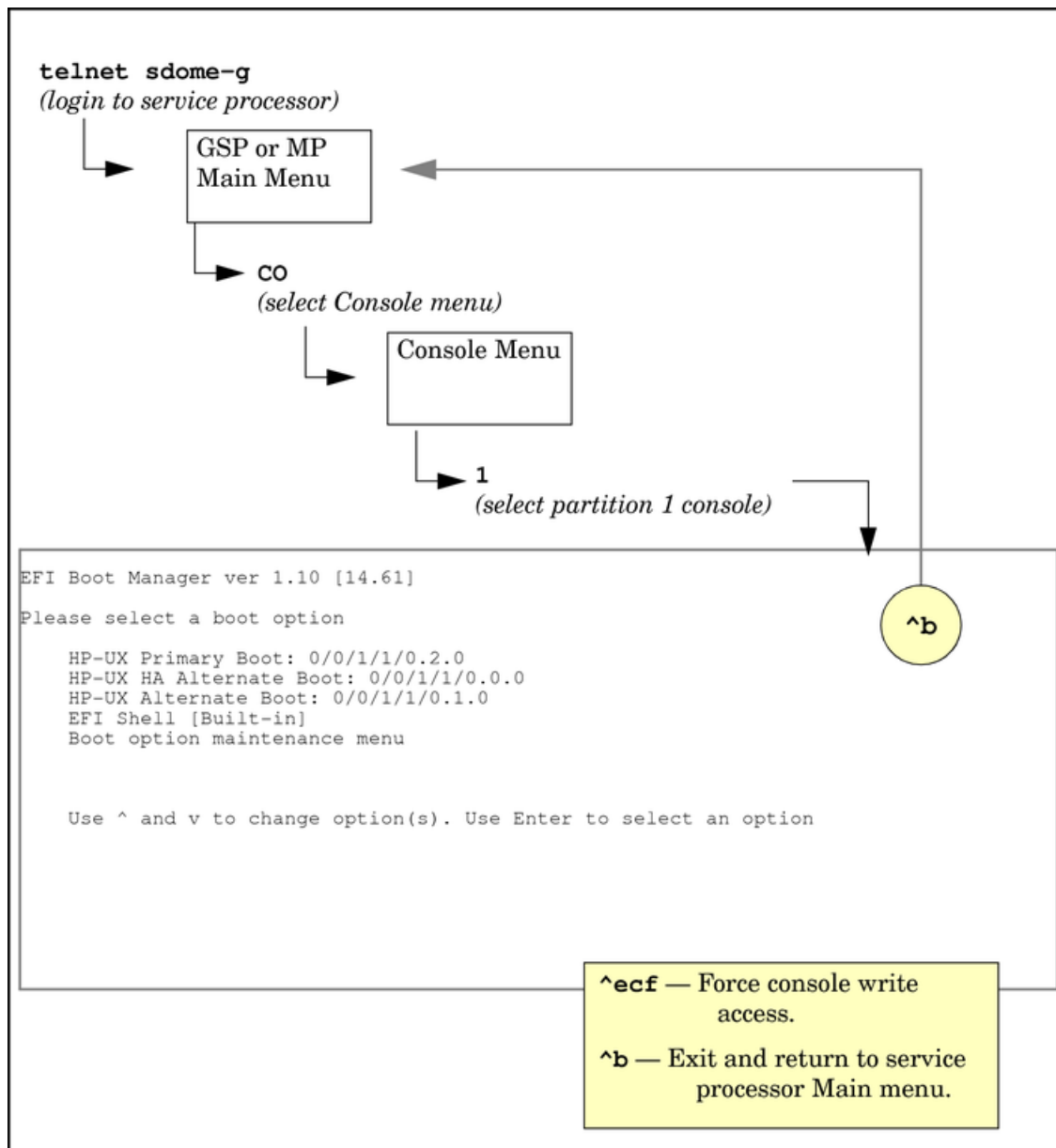
The EFI Shell provides much of the same functionality as the Boot Console Handler (BCH) interface on HP 9000 systems (PA-RISC systems).

For details on using the EFI Shell use the `help` command.

Figure B-1 (page 30) shows how to access and use the EFI system boot environment for the nPartition, including the following commands:

- To access an nPartition console, enter **CO** from the service processor (MP or GSP) Main menu.
- To force console write access, enter **^ecf (Control-e c f)**.
- To exit the console, enter **^b (Control-b)** to return to the Main menu.

**Figure B-1 Accessing the EFI Environment for an nPartition**



## Command Reference: EFI Shell Commands

Table B-1 lists the commands supported by the EFI Shell interface on HP Integrity Superdome servers.

The EFI Shell is accessible from an nPartition console when the nPartition is in an active state but has not booted an operating system.

The following categories of commands are available:

- “Boot Commands — EFI Shell” (page 31)
- “Configuration Commands — EFI Shell” (page 31)
- “Device, Driver, and Handle Commands — EFI Shell” (page 31)
- “Filesystem Commands — EFI Shell” (page 32)
- “Memory Commands — EFI Shell” (page 32)
- “Shell Navigation and Other Commands — EFI Shell” (page 33)
- “Shell Script Commands / Programming Constructs — EFI Shell” (page 33)

For details on these commands, enter **help command** at the EFI shell prompt.

**Table B-1 EFI Shell Command Reference**

Command	Description
<b>Boot Commands — EFI Shell</b> Commands related to nPartition booting	
autoboot	Set/view autoboot timeout variable
bcfg	Display/modify the driver/boot configuration
boottest	Set/view BootTest bits
lanboot	Boot over the LAN
reconfigreset	Reset the system (nPartition) for reconfiguration; the nPartition remains inactive in the 'shutdown for reconfig' state
reset	Reset the system (nPartition)
search	Connect drivers for bootable devices
<b>Configuration Commands — EFI Shell</b> Commands for changing and retrieving system (nPartition) information	
acpiconfig	Set/view ACPI configuration mode
cellconfig	Deconfigure/reconfigure cells (set cell use-on-next-boot values)
cpuconfig	Deconfigure/reconfigure CPUs
date	Display the current date or set the date of the system (nPartition)
dimmconfig	Deconfigure/reconfigure memory (DIMMs)
err	Display/change the error level
errdump	View/clear logs
fru	View FRU data
info	Display hardware information
monarch	Set/view a monarch processor
palproc	Make a PAL call
romdrivers	Enable/disable PCI expansion ROM drivers
rootcell	Set/view preferred root cells (set nPartition core cell choices)
salproc	Make a SAL call
tftp	Performs TFTP operation to a bootp/DHCP enabled Unix boot server
time	Display the current time or set the time of the system (nPartition). EFI time is set and presented in GMT (Greenwich mean time)
variable	Save/restore specific EFI variables
ver	Display the version information
<b>Device, Driver, and Handle Commands — EFI Shell</b> Commands for managing devices, drivers, and handles	
baud	View serial port com settings
connect	Bind a driver to a device
dblk	Hex dump of BlkIo devices
devices	Display devices managed by EFI drivers
devtree	Display tree of devices
dh	Dump handle info

**Table B-1 EFI Shell Command Reference** *(continued)*

<b>Command</b>	<b>Description</b>
disconnect	Disconnect driver(s) from device(s)
drivers	Display list of drivers
drvcfg	Invoke the Driver Config Protocol
drvdiag	Invoke the Driver Diagnostics Protocol
guid	Dump known GUID IDs
lanaddress	Display core I/O MAC address
load	Load EFI drivers
map	Map shortname to device path
openinfo	Display the open protocols for given handle
pci	Display PCI devices or PCI function configuration space
reconnect	Reconnect driver(s) from a device
unload	Unload a protocol image
<b>Filesystem Commands — EFI Shell</b> Commands for managing files, directories, and attributes	
attrib	Display/change the attributes of files/directories
cd	Update/view the current directory
comp	Compare the contents of two files
cp	Copy one or more files/directories to another location
edit	Edit an ASCII or UNICODE file in full screen
eficompress	Compress infile and write to outfile
efidecompress	Decompress infile and write to outfile
hexedit	Edit a file, block device, or memory region using hex
ls	Display a list of files and subdirectories in a directory
mkdir	Create one or more directories
mount	Mount a filesystem on a block device
rm	Delete one or more files/directories
setsize	Set the size of a file
touch	Update time of file/directory with current time
type	Display the contents of a file
vol	Display volume information of the file system
<b>Memory Commands — EFI Shell</b> Commands for listing and managing memory, EFI variables, and NVRAM details	
default	Set the default NVRAM values
dmem	Dump memory or memory mapped IO
dmpstore	Display all EFI variables
memmap	Display the memory map
mm	Display/modify MEM/IO/PCI



**Table B-1 EFI Shell Command Reference** *(continued)*

Command	Description
pdt	View/clear partition or cell PDT
<b>Shell Navigation and Other Commands — EFI Shell</b> Commands for basic EFI Shell navigation and customization	
alias	Set/get alias settings
cls	Clear the standard output with an optional background color
exit	Exit EFI Shell environment
getmtc	Display current monotonic counter value
help or ?	Display help
mode	Display the mode of the console output device
set	Set/Get environment variable
xchar	Turn on/off extended character features
<b>Shell Script Commands / Programming Constructs — EFI Shell</b> EFI shell-script commands	
echo	Echo message to stdout or toggle script echo
else	Script-only: Use with IF THEN
endfor	Script-only: Delimiter for FOR loop construct
endif	Script-only: Delimiter for IF THEN construct
for	Script-only: Loop construct
goto	Script-only: Jump to label location in script
if	Script-only: IF THEN construct
input	Take user input and place in efi variable
pause	Script-only: Prompt to quit or continue.
stall	Stall the processor for some microseconds



---

# C Boot Console Handler (BCH)

## Boot Console Handler (BCH) System Boot Environment

Each nPartition in a server complex has its own Boot Console Handler (BCH) interface.

The BCH interface is available through an nPartition console interface before an operating system has booted and after the cells have booted and performed nPartition rendezvous (to make the nPartition active).

The nPartition BCH interface enables you to manage and configure the HP-UX boot process for an nPartition. You also can configure some settings for the local nPartition, get some information about the nPartition and its server complex, and perform other tasks such as reboot.

Figure C-1 (page 36) shows how to access and use the BCH interface for an nPartition, including the following commands:

- To access an nPartition console, enter **CO** from the service processor (MP or GSP) Main menu.
- To force console write access, enter **^ecf (Control-e c f)**.
- To exit the console, enter **^b (Control-b)** to return to the Main Menu.

The BCH interface is available after one or more core-capable cells assigned to the nPartition has been powered on; its hardware has completed all Power-On Self Tests (POST); and the cells have booted past boot-is-blocked, rendezvoused, and BCH has started executing.

Once you begin the HP-UX boot process and load ISL, the BCH interface is no longer available.

The BCH menus and commands for nPartitions differ slightly from the commands menus for BCH on other HP 9000 server systems.

To display the current BCH menu and commands, enter **DI**.

The BCH interface **HELP** command lists BCH command or menu details.

```
Main Menu: Enter command or menu > HELP MA
---- Main Menu Help -----

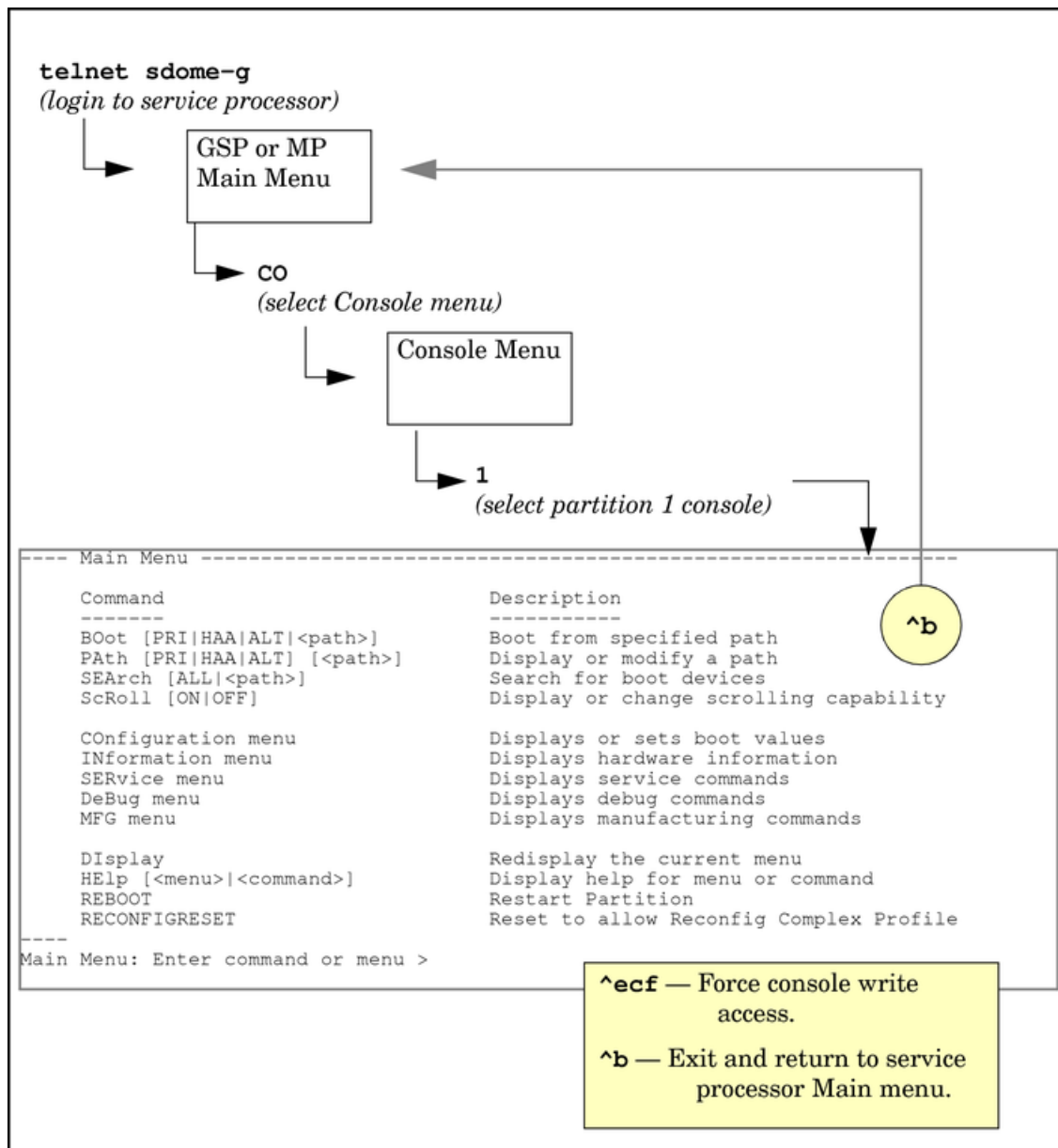
```

The following submenus are available from the main menu:

CO	nfiguration-----	BootID
IN	formation-----	ALL
SE	rvice-----	Battery
		CLEARPIM
		MemRead
		PDT
		PIM
		SCSI
		BootINfo
		CAChe
		ChipRevisions
		ComplexID
		FabricInfo
		FRU
		FwrVersion
		IO
		LanAddress
		MEmory
		PRocessor
		BootTimer
		CELLConfig
		COreCell
		CPUConfig
		DataPrefetch
		DEfault
		FastBoot
		KGMemory
		PathFlag
		PD
		ResTart
		Time

...

**Figure C-1 Accessing the BCH Interface for an nPartition**



## Command Reference: BCH Menu Commands

Table C-1 lists the commands available from the Boot Console Handler (BCH) menus for an nPartition.

The BCH Menu is accessible from an nPartition console when the nPartition is in an active state but has not booted an operating system.

The following categories of commands are available:

- “General Commands — Boot Console Handler (BCH)” (page 37).
- “Main Menu Commands — Boot Console Handler (BCH)” (page 37).
- “Configuration Menu Commands — Boot Console Handler (BCH)” (page 37).
- “Information Menu Commands — Boot Console Handler (BCH)” (page 38).
- “Service Menu Commands — Boot Console Handler (BCH)” (page 38).

For details on these commands, use the help (HE) command. At any BCH menu enter the **HE** *command* for details about the specified *command*, or enter **HE** for general help.

**Table C-1 Boot Console Handler (BCH) Command Reference**

Command	Description
<b>General Commands — Boot Console Handler (BCH)</b> These BCH commands are available from all BCH menus.	
BOot [PRI   HAA   ALT   <i>path</i> ]	Boot from the specified path.
REBOOT	Restart nPartition.
RECONFIGRESET	Reset the nPartition to allow Complex Profile reconfiguration; the nPartition remains inactive, in the shutdown for reconfig state.
DIisplay	Redisplay the current menu.
HElp [ <i>menu</i>   <i>command</i> ]	Display help for the current menu or the specified <i>menu</i> or <i>command</i> .
<b>Main Menu Commands — Boot Console Handler (BCH)</b> Commands to find devices, set boot paths (PRI,HAA, ALT), and access other BCH menus.	
BOot [PRI   HAA   ALT   <i>path</i> ]	Boot from the specified path.
PAth [PRI   HAA   ALT] [ <i>path</i> ]	Display or modify a device boot path.
SEARch [ALL   <i>cell</i>   <i>path</i> ]	Search for boot devices.
ScRoll [ON   OFF]	Display or change scrolling capability.
COntfiguration	Access the Configuration Menu, which displays or sets boot values.
INformation	Access the information menu, which displays hardware information.
SERvice	Access the Service Menu, which displays service commands.
<b>Configuration Menu Commands — Boot Console Handler (BCH)</b> Commands to display or set boot values.	
MAin	Return to the BCH Main Menu.
BootID [ <i>cell</i> [ <i>proc</i> [ <i>bootid</i> ]]]	Display or set Boot Identifier.
BootTimer [0-200]	Seconds allowed for boot attempt.
CEllConfig [ <i>cell</i> [ON   OFF]]	Configure or deconfigure the specified <i>cell</i> .
COreCell [ <i>choice cell</i> ]	Display or set core cell choices for the nPartition.
CPUconfig [ <i>cell</i> [ <i>cpu</i> [ON   OFF]]]	Configure or deconfigure the processor ( <i>cpu</i> ) on the specified <i>cell</i> .
DataPrefetch [ENABLE   DISABLE]	Display or set data prefetch behavior.
DEfault	Set the nPartition to predefined (default) values.
FastBoot [ <i>test</i> ] [RUN   SKIP]	Display or set boot tests execution (self tests).
KGMemory [ <i>value</i> ]	Display or set KGMemory requirement.
PAthFlags [PRI   HAA   ALT] [ <i>value</i> ]	Display or set boot path flags (boot actions).

**Table C-1 Boot Console Handler (BCH) Command Reference** *(continued)*

Command	Description
PD [ <i>name</i> ]	Display or set the nPartition name.
ResTart [ON OFF]	Set nPartition restart policy.
TIme [ <i>cr:yr:mo:dy:hr:mm:ss</i> ]	Read or set the real time clock, the local nPartition date/time setting. The BCH time is set and presented in GMT (Greenwich mean time).
<b>Information Menu Commands — Boot Console Handler (BCH)</b> Commands to display hardware information.	
MAIn	Return to the BCH Main Menu.
ALL [ <i>cell</i> ]	Display all of the information available for the nPartition.
BootINfo	Display boot-related information.
CAche [ <i>cell</i> ]	Display cache information.
ChipRevisions [ <i>cell</i> ]	Display revisions of major VLSI.
ComplexID	Display Complex information.
FabricInfo	Display Fabric information.
FRU [ <i>cell</i> ] [CPU MEM]	Display FRU information
FwrVersion [ <i>cell</i> ]	Display versions for PDC, ICM, and complex.
IO [ <i>cell</i> ]	Display I/O interface information.
MEmory [ <i>cell</i> ]	Display memory information.
PRocessor [ <i>cell</i> ]	Display processor information
<b>Service Menu Commands — Boot Console Handler (BCH)</b> Commands related to nPartition system service tasks.	
MAIn	Return to the BCH Main Menu.
BATtery [ <i>cell</i> ]	Display cell battery status.
CLEARPIM [ <i>cell</i> ]	Clear the nPartition NVM PIM data.
DimmDealloc [ <i>cell</i> ] [ <i>dimmm</i> ] [ON OFF]	Display, deallocate, or re-allocate the DIMM identified by <i>dimmm</i> in cell number specified by <i>cell</i> .
ErrorLog [ <i>cell</i> ] [MEMORY  IO  FABRIC  CELL]	Display error log information.
LanAddress	Display Core I/O LAN station address.
MemRead <i>address</i> [ <i>len</i> ]	Read memory locations scope of nPartition.
PDT [ <i>cell</i> ] [CLEAR]	Display or clear the PDT.
PIM [ <i>cell</i> ] [ <i>proc</i> ] [HPMC  LPMC  TOC]	Display PIM information.
SCSI [ <i>path</i> ] [INIT  RATE  TERM  WIDTH  DEFAULT [ <i>id</i> ]]	Display or set SCSI device parameters.