Bull NovaScale 5xx0 & 6xx0

User's Guide

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User's Guide

Hardware

October 2005

BULL CEDOC 357 AVENUE PATTON B.P.20845 49008 ANGERS CEDEX 01 FRANCE

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Intended Readers

This guide is intended for use by the Administrators and Operators of NovaScale 5xx0/6xx0 Servers.

Chapter 1. Introducing the Server describes server hardware components and user environment.

Chapter 2. Getting Started explains how to connect to and use the server.

Chapter 3. Managing Domains describes how to perform straightforward server domain management tasks.

Chapter 4. Monitoring the Server explains how to supervise server operation.

Chapter 5. Tips and Features for Administrators explains how, as Customer Administrator, you can configure the server to suit your environment.

Appendix A. Specifications

Appendix Error Messages and Recovery Information

Highlighting

The following highlighting conventions are used in this guide:

Bold		Identifies predefined commands, subroutines, keywords, files, structures, buttons, labels, and icons.
Italics	:	Identifies referenced publications, chapters, sections, figures, and tables.
<	>	Identifies parameters to be supplied by the user.

Abbreviations, acronyms and concepts are documented in the Glossary.

Related Publications

Site Preparation Guide, 86 A1 87EF

explains how to prepare a Data Processing Center for Bull NovaScale Servers, in compliance with the standards in force. This guide is intended for use by all personnel and trade representatives involved in the site preparation process.

Installation Guide, 86 A1 93EM

explains how to set up and start NovaScale 5xx0/6xx0 Servers for the first time. This guide is intended for use by qualified support personnel.

NovaScale 5000/6000 Series Cabling Guide, 86 A1 34ER describes server cabling.

Bull 1300H/L & 1100H/L Cabinets, 86 A1 91EM explains how to install and fit out rack cabinets for Bull NovaScale Servers and peripheral devices.

Bull NovaScale Series Documentation Overview, 86 A2 27EM describes the hardware, software and online documentation available for Bull NovaScale Servers, related Operating Systems, and licensed programs.

I Note:

According to server configuration and version, certain features and functions described in this guide may not be accessible. Please contact your Bull Sales Representative for sales information.

Regulatory Specifications and Disclaimers

Declaration of the Manufacturer or Importer

We hereby certify that this product is in compliance with European Union EMC Directive 89/336/EEC, using standards EN55022 (Class A) and EN55024 and Low Voltage Directive 73/23/EEC, using standard EN60950. The product has been marked with the CE Mark to illustrate its compliance.

Safety Compliance Statement

- UL 60950 (USA)
- IEC 60950 (International)
- CSA 60950 (Canada)

European Community (EC) Council Directives

This product is in conformity with the protection requirements of the following EC Council Directives:

Electromagnetic Compatibility

• 89/336/EEC

Low Voltage

• 73/23/EEC

EC Conformity

• 93/68/EEC

Telecommunications Terminal Equipment

• 1999/5/EC

Neither the provider nor the manufacturer can accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product.

Compliance with these directives requires:

- an EC declaration of conformity from the manufacturer
- an EC label on the product
- technical documentation

Federal Communications Commission (FCC) Statement

I Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment. The customer is responsible for ensuring compliance of the modified product.

FCC Declaration of Conformity

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Compliance Statement (Industry Canada)

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This product is in conformity with the protection requirements of the following standards:

Electromagnetic Compatibility

- ICES-003
- NMB-003

Laser Compliance Notice

This product that uses laser technology complies with Class 1 laser requirements.

A CLASS 1 LASER PRODUCT label is located on the laser device.

Class 1 Laser Product Luokan 1 Laserlaite Klasse 1 Laser Apparat Laser Klasse 1

Definition of Safety Notices



DANGER

A *Danger* notice indicates the presence of a hazard that has the potential of causing death or serious personal injury.



CAUTION:

A *Caution* notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury.



Warning:

A *Warning* notice indicates an action that could cause damage to a program, device, system, or data.

Electrical Safety

The following safety instructions shall be observed when connecting or disconnecting devices to the system.



DANGER

The Customer is responsible for ensuring that the AC electricity supply is compliant with national and local recommendations, regulations, standards and codes of practice.

An incorrectly wired and grounded electrical outlet may place hazardous voltage on metal parts of the system or the devices that attach to the system and result in an electrical shock.

It is mandatory to remove power cables from electrical outlets before relocating the system.



CAUTION:

This unit has more than one power supply cable. Follow procedures for removal of power from the system when directed.

Laser Safety Information

The optical drive in this system unit is classified as a Class 1 level Laser product. The optical drive has a label that identifies its classification.

The optical drive in this system unit is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 60825–1: 2001 and CENELEC EN 60825–1: 1994 for Class 1 laser products.

Invisible laser radiation when open. Do not stare into beam or view directly with optical instruments.

Class 1 Laser products are not considered to be hazardous. The optical drive contains internally a Class 3B gallium–arsenide laser that is nominally 30 milliwatts at 830 nanometers. The design incorporates a combination of enclosures, electronics, and redundant interlocks such that there is no exposure to laser radiation above a Class 1 level during normal operation, user maintenance, or servicing conditions.

Data Integrity and Verification



Warning:

Bull NovaScale Servers are designed to reduce the risk of undetected data corruption or loss. However, if unplanned outages or system failures occur, users are strongly advised to check the accuracy of the operations performed and the data saved or transmitted by the system at the time of outage or failure.

PAM Writing Rules

Illegal Characters

The following table lists the illegal characters that must not be used in PAM identifiers.

Illegal Characters	
à, é, è, ù, ^, ¨	Accentuated letters
/	Slash
/	Backslash
"	Double quote
,	Simple quote
"	Inverted comma
&	Ampersand
+	Plus
*	Asterisk
%	Percent
=	Equal sign
<	Less-than sign
>	Greater-than sign
:	Colon
!	Exclamation mark
?	Question mark
;	Semi-colon
,	Comma
~	Tilde
1	Pipe operator
	Space. Use – (dash) or _ (underscore)

Table 1.PAM illegal characters

String Lengths

The following table lists authorized string lengths.

String Type	Length
CellBlock / System Name	16
Scheme Name	32
History Name	64
Archive Name	75 (History Name: + 11 (_JJMMAA_nnn)
LUN Name	32
Switch Name	32
Event Name	32
Description	256 (Scheme: unlimited)
Domain Identity Name	16

Table 2.String length rules

Registry Keys

PAM obtains file paths via 2 registry keys:

ReleaseRoot:

Contains PAP application file paths (DLL, WEB pages, models,...). Two versions of PAM software can be installed and used indifferently on the same machine: each new version is installed in a new directory.

• SiteRoot:

Contains site data file paths. Site data remains valid when the PAM software version changes.

Registry keys are generally stored under: HKEY_LOCAL_MACHINE\SOFTWARE\BULL\PAM

AZERTY/QWERTY Keyboard Lookup Table

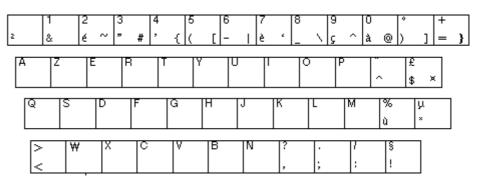


Figure 1. AZERTY keyboard

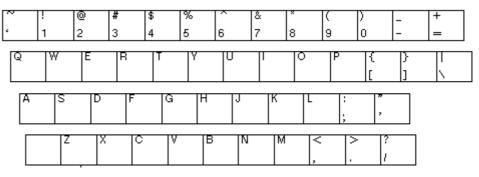


Figure 2. QWERTY keyboard

Administrator's Memorandum

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* Reserved for partitioned servers and extended systems.

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Chapter 1. Introducing the Server

This chapter describes the main hardware components and user environment for NovaScale 5xx0/6xx0 Servers. It includes the following topics:

- Bull NovaScale Server Overview, on page 1-2
- Accessing Server Components, on page 1-23
- Bull NovaScale Server Resources, on page 1-25
 - PAM Software Package, on page 1-25
 - EFI Utilities, on page 1-26

I Note:

Customer Administrators and Customer Operators are respectively advised to consult the *Administrator's Memorandum*, on page xxviii or the *Operator's Memorandum*, on page xxx for a detailed summary of the everyday tasks they will perform.

For further information about user accounts and passwords, see *Setting up PAP Unit Users*, on page 5-17.

Bull NovaScale Server Overview

Bull NovaScale Servers for business and scientific applications are based upon the FAME architecture (Flexible Architecture for Multiple Environments), leveraging the latest generation of Intel[®] Itanium[®] 2 processors.

NovaScale 5xx0 Servers are designed to operate as single SMP systems and are delivered with one pre-configured domain englobing all the hardware and software resources managed by the Operating System.

NovaScale 6xx0 Servers are designed to operate as one, two, three or four hardware–independent SMP systems or domains, each running an Operating System instance and a specific set of applications.

According to version, servers are delivered rack-mounted and ready-to-use in high or low cabinets.



Figure 3. Bull NovaScale Server cabinets

Dynamic Partitioning

Bull NovaScale 6000 Series servers can be dynamically partitioned into physically independent ccNUMA (Cache Coherent Non Uniform Memory Access) SMP systems or domains, each running an Operating System instance and a specific set of applications.

Extended Configurations

Several Bull NovaScale Servers may be administered through a single instance of PAM software.

Cluster Configurations

Several Bull NovaScale Servers may be grouped to act like a single system, enabling high availability, load balancing and parallel processing.

Server Features

The main features of Bull NovaScale Servers are:

Intel® Itanium® Processor Family architecture:

- Modularity, predictable performance and growth

High availability:

- Component redundancy
- Capacity to isolate or replace a faulty component without service disruption
- Global and unified system visibility
- Round-the-clock operation

Scalability:

- Dynamic partitioning
- Power on demand : capacity to dynamically adapt resources to load requirement

Simultaneous support of multiple environments:

- Microsoft® Windows® Server
- Linux®

High performance computing capabilites:

- Technical and scientific applications:
 - . High Performance Computing (HPC)
- Business Intelligence:
 - . Datawarehousing
 - . Datamining
- Large enterprise applications:
 - . ERP
 - . CRM
 - . SCM ...
- Large database applications for Internet transactions.
- Large business sector applications:
 - . Online billing
 - . Online reservations
 - . Online banking ...

Built-in Platform Administration and Maintenance (PAM) software suite:

- Proactive administration
- Optimization of resources
- Automatic generation of corrective actions and calls to support centers
- Dynamic configuration

Bull NovaScale Master System Management (NSM) software suite:

- Windows, Linux, and Platform management
- Monitoring, Information, Control, and Event Handling
- Client / Server / Agent architecture
- WEB standard OpenSource solutions

Server Hardware

I Note:

Abbreviations and acronyms are documented in the Glossary.

Main server hardware components are:

Central SubSystem Module (CSS Module)

The CSS Module houses core hardware components:

- 2 or 4 QBBs
- 1 or 2 IOBs
- 1 or 2 IORs
- 1 PMB
- 1 MPB
- 4 DPS units

IF Notes:

- The NovaScale 6xx0 Server CSS Module can be logically divided into two **Cells**, each with one or two QBBs and one IOB, to allow dynamic partitioning.
- The NovaScale 6320 Server is equipped with two inter-connected CSS modules.

Quad Brick Block (QBB)

The QBB is equipped with 1 to 4 Itanium 2 processors and 16 DDR DIMMs. The QBB communicates with the rest of the system the high–speed bidirectional link **Scalability Port Switches (SPS)** located on the Midplane.

IO Board (IOB)

The IOB provides 4 PCI–X bridges for the connection of up to 11 PCI–X boards, and a PCI Hot Plug Board (PHPB). The IOB communicates with the rest of the system through the high–speed bidirectional link **Scalability Port Switches (SPS)** located on the Midplane.

IO Riser (IOR)

The IOR is an IOB daughter board providing legacy IO connections: 2 USB ports, 1 LAN port, 2 serial ports, 1 video port, and 1 CD/DVD Rom drive.

Platform Maintenance Board (PMB)

The PMB concentrates logistics access and links the platform to the Platform Administration Processor (PAP Unit) running Platform Administration and Maintenance (PAM) software.

Midplane (MPB)

The MPB houses the high–speed directional link **Scalability Port Switch (SPS)**. The MPB is divided into two physical **Cells**, each capable of connecting 2 QBBs and 1 IOB, which communicate with the rest of the system through the SPS. The MPB also houses the system clock and connects all other system boards.

Distributed Power Supply (DPS) Unit

Each DPS Unit supplies 48V AC/DC power to the server. Each CSS module is equipped with 4 DPS units for full redundancy.

Platform Administration Processor (PAP) Unit

The PAP Unit hosts all server administration software, in particular Platform Administration and Maintenance (PAM) software.

KVM Switch

The KVM Switch allows the use of a single keyboard, monitor and mouse for the local server domains and the local PAM console.

Console

The Console contains the keyboard, monitor and touch pad / mouse used for local access to the server domains and to the PAP Unit.

Disk Subsystem

A SCSI RAID or FC disk subsystem is required for OS disk partitions.

Additional Peripherals

Additional peripherals such as disk subsystems, storage area networks, communication networks, archiving peripherals etc. can be connected to the server via PCI adapters located in the IOBs. Such peripherals may either be rack-mounted in the server cabinet (if free space is available) or in external cabinets.

Server Firmware and Software

Operating Systems (OS)

The server is certified for the following Operating Systems:

- Windows Server 2003, Enterprise Edition
- Windows Server 2003, Datacenter Edition
- Linux Red Hat Enterprise Linux Advanced Server
- Novell SUSE

BIOS

The BIOS controls the server startup process, dynamic resource allocation (Domain reconfiguration, hot–plugging), and error handling. The BIOS also includes:

- The Extended Firmware Interface (EFI), which provides the OS with system services.
- The EFI Shell, an autonomous environment used to run Off-line Test & Diagnostic suites.

Platform Administration and Maintenance (PAM) suite

The PAM Web–based software suite is used to operate, monitor, and configure the server. PAM can be accessed locally or remotely through Microsoft Internet Explorer or Mozilla browsers, under the protection of appropriate access rights. PAM provides the administration functions needed to manage and maintain the server:

- Domain configuration and resource allocation
- Alert or maintenance requests to the Customer Service Center
- Error logging ...

Test & Diagnostics suites

The server is delivered with the following T & D suites:

- Online Test & Diagnostic suite
- Offline Test & Diagnostic suite
- Power-On Self-Test suite

NovaScale Master (NSM) Management suite

The NSM software suite allows you to monitor and manage NovaScale Windows and Linux systems.

Conformance to Standards

Intel

Bull NovaScale Servers conform to all Intel platform standards:

- ACPI (Advanced Configuration and Power Interface)
- IPMI (Intelligent Platform Management Interface)
- EFI (Extended Firmware Interface)
- SMBIOS (System Management BIOS)
- DIG64 (Developer Interface Guide for Intel Itanium Architecture)

Windows

Bull NovaScale Servers conform to the standards set out in the Windows Hardware Design Guide.

Getting to Know the Server

NovaScale 5080 Server

I Note:

Server components and configuration may differ according to the version chosen.

The server is delivered rack-mounted and pre-cabled in a high cabinet, containing the following components:

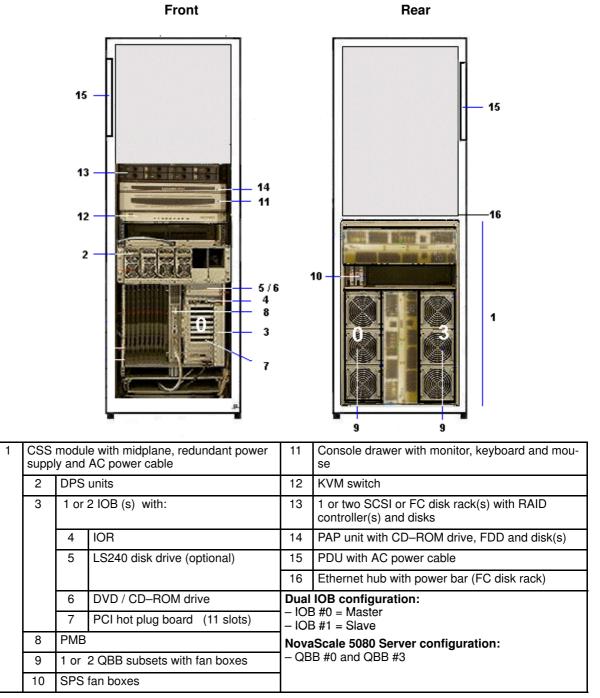


Figure 4. NovaScale 5080 Server components (example)

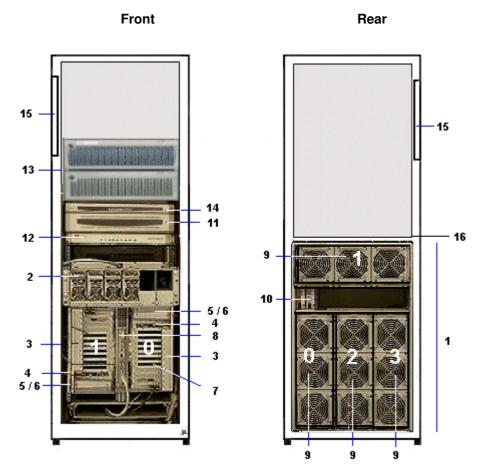


NovaScale 5160 Server

I Note:

Server components and configuration may differ according to the version chosen.

The server is delivered rack-mounted and pre-cabled in a high cabinet, containing the following components:



1			le with midplane, redundant power I AC power cable	11	Console drawer with monitor, keyboard and mou- se
	2	DPS	units	12	KVM switch
	3	1 or	2 IOB (s) with:	13	1 or two SCSI or FC disk rack(s) with RAID controller(s) and disks
		4	IOR	14	PAP unit with CD–ROM drive, FDD and disk(s)
		5	LS240 disk drive (optional)	15	PDU with AC power cable
				16	Ethernet hub with power bar (FC disk rack)
		6	DVD / CD–ROM drive		IOB configuration:
		7	PCI hot plug board (11 slots)		3 #0 = Master 3 #1 = Slave
	8	PMB	3		Scale 5160 Server configuration:
	9	1 up	to 4 QBB subsets with fan boxes] – QB	B #0, QBB #1, QBB #2, and QBB #3
	10	SPS	fan boxes	1	

Figure 5. NovaScale 5160 Server components (example)

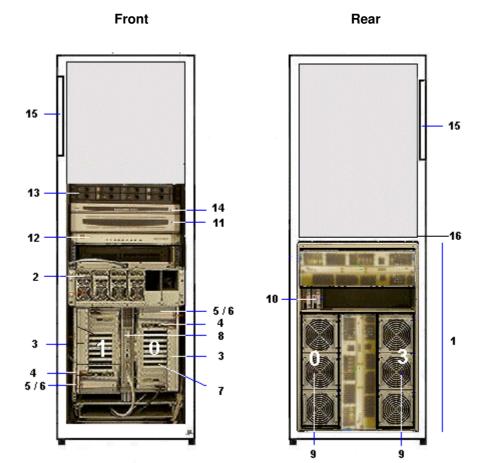
Dote:

NovaScale 6080 Server

I Note:

Server components and configuration may differ according to the version chosen.

The server is delivered rack-mounted and pre-cabled in a high cabinet, containing the following components:



1			ule with midplane, redundant oply and AC power cable	11	Console drawer with monitor, keyboard and mouse
	2	DPS	Gunits	12	KVM switch
	3	2 IC	DB (s) with:	13	1 or two SCSI or FC disk rack(s) with RAID controller(s) and disks
		4	IOR	14	PAP unit with CD–ROM drive, FDD and disk(s)
		5	2 USB ports	15	PDU with AC power cable
				16	Hub with power bar
		6	DVD / CD–ROM drive		aScale 6080 configuration:
		7	PCI hot plug board (11 slots)	– QE	3B #0 and QBB #3
	8	PME	3	1	
	9	2 QE	3Bs with fan boxes		
	10	SPS	fan boxes		

Figure 6. NovaScale 6080 Server components (example)

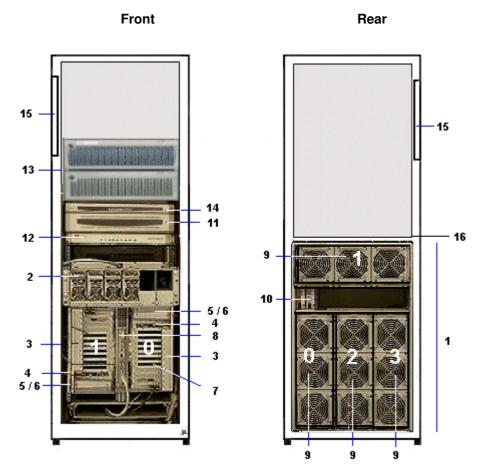
Dote:

NovaScale 6160 Server

I Note:

Server components and configuration may differ according to the version chosen.

The server is delivered rack-mounted and pre-cabled in a high cabinet, containing the following components:



1			ule with midplane, redundant oply and AC power cable	11	Console drawer with monitor, keyboard and mouse
	2	DPS	Gunits	12	KVM switch
	3	2 IC	DB (s) with:	13	1 or two SCSI or FC disk rack(s) with RAID controller(s) and disks
		4	IOR	14	PAP unit with CD–ROM drive, FDD and disk(s)
		5	2 USB ports	15	PDU with AC power cable
				16	Hub with power bar
		6	DVD / CD–ROM drive		aScale 6160 configuration:
		7	PCI hot plug board (11 slots)	– QE	3B #0, QBB #1, QBB #2, and QBB #3
	8	PME	3		
	9	4 QI	BBs with fan boxes		
	10	SPS	fan boxes		

Figure 7. NovaScale 6160 Server components (example)

I Note:

NovaScale 6320 Server

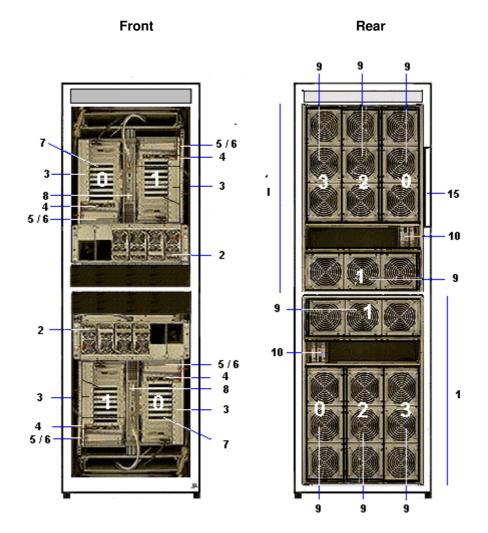
I Note:

Server components and configuration may differ according to the version chosen.

The server is delivered rack-mounted and pre-cabled in a high cabinet, containing the following components:

Main Cabinet

The main cabinet contains the following components:



1			dules, each with midplane, redun- supply and AC power cable	8	РМВ
	2	DPS	units	9	1 to 4 QBBs with fan boxes
	3	1 or	2 IOB (s) with:	10	SPS fan boxes
		4	IOR	15	PDU with AC power cable
		5	2 USB ports		Scale 53206320 configuration:
		6	DVD / CD–ROM drive		B #0, QBB #1, QBB #2, and QBB #3 Module 0 B #0, QBB #1, QBB #2, and QBB #3 Module 1
		7	PCI hot plug board (11 slots)		

Figure 8. NovaScale 6320 Server main cabinet components (example)



I/O Cabinet

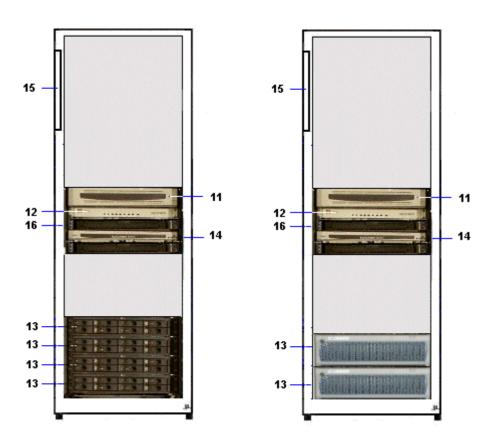
The I/O cabinet contains the following components:

I/O cabinet with SCSI disks



Front





11	Console drawer with monitor, keyboard and mouse
12	KVM switch
13	1 up to 4 SCSI disk rack(s) with RAID controller(s) and disks, or 1 or two FC disk rack(s) with RAID controller(s) and disks
14	PAP unit with CD-ROM drive, FDD and disk(s)
15	PDU with AC power cable
16	Hub with power bar

Figure 9. NovaScale 6320 Server I/O cabinet components (examples)

I Note:

Server Components

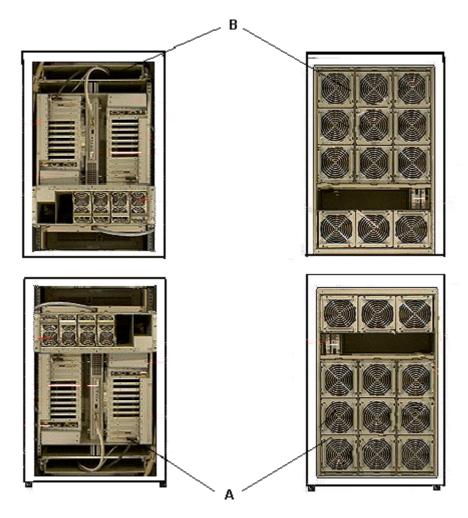
Central Subsystem (CSS) Module

The CSS Module houses main hardware components. The NovaScale 5080/5160 Server and the NovaScale 6080/6160 Server are equipped with one CSS module, located at the bottom of the cabinet. The NovaScale 6320 Server is equipped with two CSS modules, located at the top and bottom of the main cabinet.

Front view	Rear view
	F G
 (A): 2 to 6 DPSs (Distributed Power Supply: (B): PMB (Platform Management Board): 	(F): 2 SPS fan boxes Each Midplane is equipped with two redundant fan boxes for cooling.
This active board links the server to the Platform Administration Processor (PAP) Unit (via an Ethernet link).	(G): 1, 2, 3 or 4 QBB fan boxes: Each QBB subset is equipped with a fan box for cooling.
 (C): IOBs (Input / Output Box): Each IOB box houses: 1 IOB (Input / Output Board) 1 PHPB (PCI Hot Plug Board) 11 hot-plug PCI-X (100-133 MHz) slots with optional: 	 (G): 1, 2, 3 or 4 QBB subsets: Each QBB subset houses: 1 mother board 2 memory boards 4 processors 16 DIMMs
 1 SCSI HBA 1 PCI SCSI card 1 PCI FC card 1 PCI Giga Ethernet card 8 free slots (D): 1 IOR (Input / Output Riser): 2 A-type USB ports 1 RJ45 10/100 Mbps Ethernet port 2 DB9–M RS232 serial ports 1 HD15–F VGA port (E): 1 DVD/CD–ROM drive 1 LS240 drive (optional) 	1 MidPlane (MP) This active board is used to interconnect the QBBs, IOBs and the PMB.
Each IOB is cooled by the corresponding QBB fan box.	



NovaScale 6320 Server CSS Modules



A: Module 0, B: Module 1

Figure 11. CSS modules (NovaScale 6320 Server example)

Dote:

See Figure 10 for CSS module details.

Integrated Platform Administration Processor (PAP) Unit



Warning:

The PAP unit has been specially configured for Bull NovaScale Server administration and maintenance. NEVER use the PAP unit for other purposes and NEVER change PAP unit configuration unless instructed to do so by an authorized Customer Service Engineer.

The PAP unit is linked to the server via the Platform Management Board (PMB). It hosts Platform Administration Software (PAM). According to version, the PAP unit is located in the center of a high cabinet or at the top of a low cabinet.



Or



PAP Unit 1U	PAP Unit 2U
• 1 P4C / 3 GHz PC	• 1 P4C / 2.6 GHz PC
– 1 GB RAM	– 1 GB RAM
– 2 x 80 GB SATA disks (RAID1)	– 2 x 80 GB SATA disks (RAID1)
	 1 free disk slot
 1 CD/DVD–ROM drive 	 1 CD/DVD–ROM drive
– 11 FDD	– 1 FDD
 2 serial ports 	 – 2 serial ports
 1 parallel port 	 1 parallel port
 3 PCI slots 	 – 3 PCI slots
 2 Gigabit Ethernet ports (1 free) 	 2 Gigabit Ethernet ports (1 free)
 3 USB 2.0 ports (1 front + 2 rear) 	 3 USB 2.0 ports (1 front + 2 rear)
 1 SVGA video port 	 1 SVGA video port
– 2 PS/2 ports	 – 2 PS/2 ports
 Microsoft Windows of 	perating system
 Internet Explorer sof 	tware
PAM software	
1 power cable	

Figure 12. PAP unit

Integrated Console

According to version, the integrated console is located in the center of a high cabinet or at the top of a low cabinet.

The Integrated Console contains the keyboard, monitor and touch pad used for local access to the server and to the Platform Administration Processor (PAP) Unit.



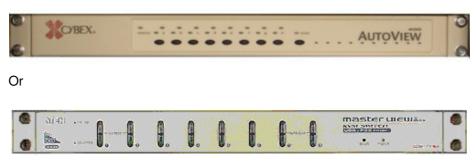
- 1 monitor
- 1 QWERTY keyboard and touch pad
- 1 power cable

Figure 13. Integrated Console features

Keyboard / Video / Mouse (KVM) Switch

The KVM Switch allows the use of the integrated console for the local server and the local Platform Administration and Maintenance console.

8–Port KVM Switch



8 ports		
• 1 power cable		

Figure 14. 8-port KVM switch features

16–Port KVM Switch

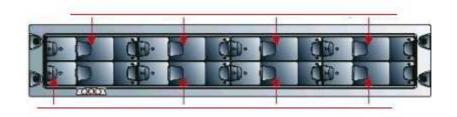
Accert		1= -	AUTOVIEWWOOD
• 16	6 ports		

• 1 power cable

Figure 15. 16-port KVM switch features

SR-0812 SCSI RAID / SJ-0812 SCSI JBOD Disk Racks

SR–0812 SCSI RAID / SJ–0812 SCSI JBOD Disk Racks are delivered with pre–installed system disks (two RAID#1 and one spare disk per domain). Empty slots can be used for data disks. According to version, the Disk Rack is located in the main or I/O cabinet.

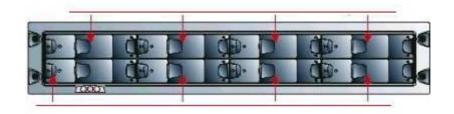


- 8 slots
 - 1 RAID controller card
 - 3 disks per domain (2 RAID#1 + 1 spare)
 - 2 power cables (redundant power supply)

Figure 16. SR-0812 SCSI RAID / SJ-0812 SCSI JBOD disk rack features

SJ–0812 SCSI JBOD Extension Disk Rack

The SJ–0812 SCSI JBOD Extension Disk Rack offers eight empty slots for Customer data disks. According to version, the Extension Disk Rack is located in the main or I/O cabinet.



8 slots

• 2 power cables (redundant power supply)

Figure 17. SJ-0812 SCSI JBOD extension disk rack features

FDA 1x00 FC Disk Rack

The FDA 1x00 FC Disk Rack is delivered with pre–installed system disks (two RAID#1 and one spare disk per domain). Empty slots can be used for data disks. According to version, the Disk Rack is located in the main or I/O cabinet.

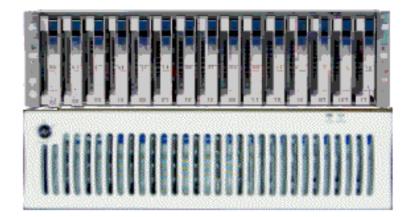


- 15 slots
 - 2 FC RAID controller cards, 1 FC port per controller
 - 3 disks per domain (2 RAID#1 + 1 spare)
 - 2 power cables (redundant power supply)

Figure 18. FDA 1x00 FC disk rack features

FDA 2x00 FC Disk Rack

The FDA 2x00 FC Disk Rack is delivered with pre-installed system disks (two RAID#1 and one spare disk per domain). Empty slots can be used for data disks. According to version, the Disk Rack is located in the main or I/O cabinet.



- 1 controller unit & 1 disk unit
- 15 slots
- 2 FC RAID controller cards, 2 FC ports per controller
- 3 disks per domain (2 RAID#1 + 1 spare)
- 2 power cables (redundant power supply)

Figure 19. FDA 2x00 FC disk rack features

FDA 1x00 FC Extension Disk Rack

The FDA 1x00 FC Extension Disk Rack offers15 empty slots for data disks. According to version, the Disk Rack is located in the main or I/O cabinet.



- 15 slots
- 2 power cables (redundant power supply)

Figure 20. FDA 1x00 FC extension disk rack features

Ethernet Hub

The optional Maintenance LAN Ethernet Hub is used to connect PMB, PAP Unit and external FDA FC Disk Rack Ethernet ports.

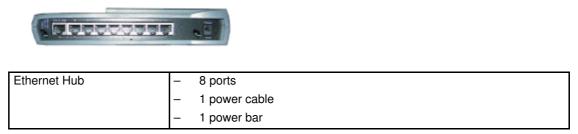


Figure 21. Ethernet hub features

USB Modem

The optional USB modem is used to transmit Autocalls to the Remote Maintenance Center, if your maintenance contract includes the Autocall feature.



USB Modem	 1 USB cable
	– 1 RJ11 cable

Figure 22. USB modem features

NPort Server

The Nport Server is used connect the administration port of the SR–0812 SCSI RAID disk rack to the PAP Unit.



NPort Server	-	2 DB9 to Jack cable
	-	1 RJ45 – RJ45 Ethernet cable

Figure 23. NPort Server features

Power Distribution Unit (PDU)

The PDU supplies mains power to the PAP unit, the external Disk Rack, the KVM Switch, the Integrated Console, and the Ethernet Hub. When the server is equipped with an FDA 1x00 FC or an FDA 2x00 FC, the PDU also supplies mains power to the Power Bar. The PDU is located in the top left part of the cabinet. According to version, the PDU is located in the top left part of the main or I/O cabinet.



Front Rear

- 6 (8A) sockets (front):
- 2 (1A) sockets (rear):
- 1 (20A) power cable

Figure 24. PDU features

Accessing Server Components

During normal operation, cabinet components can be accessed from the front. Customer Service Engineers may also remove the rear and side covers for certain maintenance operations.



Important:

Optimum cooling and airflow is ensured when the cabinet door is closed.

Opening the Front Door

Tools Required:

Cabinet key

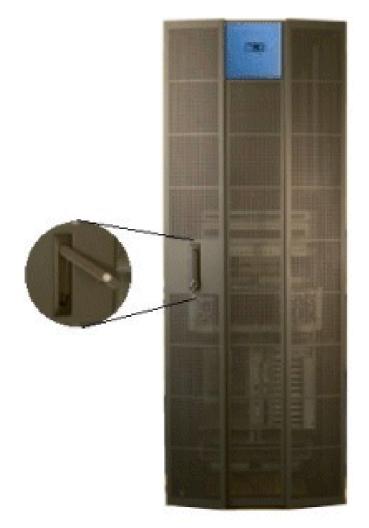


Figure 25. Opening the front door

- 1. Unlock the front door with the key.
- 2. Pull out the locking mechanism and turn to open.
- 3. Open the door as required.

Closing the Front Door

- 1. Close the door.
- 2. Turn the locking mechanism to close and push back into place.
- 3. Lock the front door with the key.

Opening / Closing the Integrated Console

The server is equipped with an integrated console for local administration and maintenance operations.



Figure 26. Integrated console

To open the integrated console:

- 1. Slide the console forward until it clicks into place.
- 2. Use the front bar to lift the screen panel into position.

To close the integrated console:

- 1. Press the 2 buttons marked PUSH on either side of the keyboard panel to release the console.
- 2. Lower the front bar to close the screen panel.
- 3. Slide the console back into the cabinet.

Bull NovaScale Server Resources

IF Note:

According to server configuration and version, certain features and functions described in this guide may not be accessible. Please contact your Bull Sales Representative for sales information.

System Resource and Documentation CD–Roms

The Bull NovaScale Server System Resource and Documentation CD–Roms contain all the firmware and documentation referred to in this guide.

PAM Software Package

The Bull NovaScale Server is equipped with an integrated Platform Administration and Maintenance software package, otherwise known as the PAM software package.

One part of PAM software is an embedded application (MAESTRO) running on the Platform Management Board(s) (PMB) and the other is an external application (PAM Kernel / Web User Interface) running on the Platform Administration Processor (PAP) unit under Microsoft Windows.

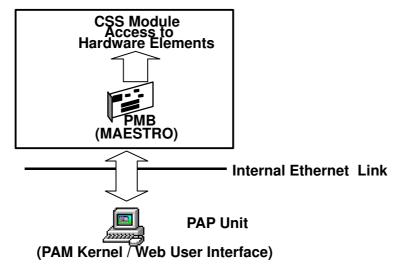


Figure 27. PAM software deployment

The PAM Web–based administration and maintenance tools give you immediate insight into system status and configuration. You will use PAM software to operate, monitor, and configure your Bull NovaScale Server.

As soon as your system is connected to the power supply, the PAP unit running Microsoft Windows and PAM software also powers up. For further information about connecting to PAM, see *Connecting to the PAM Web Site*, on page 2-2.

PAP Unit Mirroring and Failover Policy

Most configuration, administration, and maintenance activities are carried out from the PAP unit. To ensure a high level of data integrity and availability, the PAP unit is equipped with two extractable mirrored disks. Mirroring writes and updates data across both disks, creating a single logical volume with completely redundant information on each disk. If one disk fails, it can be replaced without losing data.

I Note:

For enhanced data integrity and availability, the PAP unit can be equipped with a third disk. Contact your Customer Representative for details.

EFI Utilities

The Bull NovaScale Server EFI utilities provide a complete set of configuration, operation, and maintenance tools:

- EFI driver,
- EFI Shell,
- EFI system utility,
- EFI system diagnostic,
- Operating System loader.

For further details, see Chapter 5. Tips and Features for Administrators.

Chapter 2. Getting Started

This chapter explains how to connect to and start server domains. It includes the following topics:

- Connecting to the PAM Web Site, on page 2-2
- PAM User Interface, on page 2-5
- Setting up Users, on page 2-8
- Toggling the Local / Integrated Console Display, on page 2-9
- Powering Up / Down the NovaScale 5xx0 Server Domain, on page 2-10
- Powering Up / Down NovaScale 6080/6160 Server Domains, on page 2-12
- Powering Up / Down NovaScale 6320 Server Domains, on page 2-17
- Preparing Server Domains for Remote Access via the Enterprise LAN, on page 2-22
- Preparing Server Domains for Remote Access via the Web, on page 2-24
- Connecting to a Server Domain via the Enterprise LAN, on page 2-25
- · Connecting to a Server Domain via the Web, on page 2-26
- Installing Applications, on page 2-27

Dote:

Customer Administrators and Customer Operators are respectively advised to consult the *Administrator's Memorandum*, on page xxviii or the *Operator's Memorandum*, on page xxx for a detailed summary of the everyday tasks they will perform.

For further information about user accounts and passwords, see *Setting up PAP Unit Users*, on page 5-17.

Connecting to the PAM Web Site

The server is equipped with an integrated Platform Administration and Maintenance software package, otherwise known as PAM software. One part of PAM software is an embedded application (MAESTRO) running on the Platform Management Board (PMB) and the other is an external application running on the Platform Administration Processor (PAP) unit under Microsoft Windows.

The PAM Web–based administration and maintenance tools give you immediate insight into system status and configuration. You will use PAM software to operate, monitor, and configure your server.

I Notes:

Local and remote access rights to the PAP unit and to the PAM Web site must be configured by the Customer Administrator. For further details, refer to the Microsoft Windows documentation and to *Setting up PAP Unit Users*, on page 5-17. Customer Administrator rights are required for all PAM configuration tasks.

Connecting to the PAM Web Site from the Local / Integrated Console



Access to the local / integrated console should be restricted to Customer / Support Administrators and Operators ONLY to avoid inadvertent damage to software and/or hardware components.

- 1. Check that the KVM switch is set to the **PAP Unit** port. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 2. From the PAP unit Microsoft Windows desktop, double-click the PAM icon (http://localhost/PAM).
- 3. When prompted, enter the appropriate Administrator or Operator **User Name** and **Password**. The PAM home page appears.

Connecting to the PAM Web Site from a Remote Computer/Workstation

The PAM Software utility can be accessed from any PC running Microsoft Windows with the Internet Explorer (6 or later) browser installed and/or from any workstation running Linux with the Mozilla (1.6 or later) browser installed.



Important:

Before connecting to PAM from a remote computer, you are advised to disconnect from your local Windows session on the PAP unit by clicking Start \rightarrow Log Off.

If Pop–up Blocker is turned on in your Web Browser, you MUST add the PAM Web site to the list of allowed sites.

Do NOT use the Mozilla browser on the PAP unit.

Enabling Remote Access to the PAM Web Site with Internet Explorer

- 1. From the remote computer, configure Internet Explorer to connect directly to the PAM Web site:
 - a. From the Internet Explorer main menu bar, click **Tools** \rightarrow **Internet Options**.
 - b. Under the General tab, type the PAM Web site URL defined during the PAP installation procedure in the Home Page Address field: http://<PAPname>/pam (where <PAPname> is the name allocated to the PAP unit during setup).
 - c. Click Advanced \rightarrow Restore Defaults to validate default settings.
 - d. Save your changes and close Internet Explorer.
- 2. Launch Internet Explorer to connect directly to the PAM web site.
- 3. When prompted, enter the appropriate Administrator or Operator **User Name** and **Password**. The PAM home page appears.

Enabling Remote Access to the PAM Web Site with Mozilla

- 1. From the remote computer, configure Mozilla to connect directly to the PAM Web site:
 - a. From the Mozilla main menu bar, select $Edit \rightarrow Preferences \rightarrow Navigator$.
 - b. Select the Home Page checkbox and enter the PAM Web site URL defined during the PAP installation procedure in the location field: http://<PAPname>/pam (where <PAPname> is the name allocated to PAP unit during setup).
 - c. Select the Restore Defaults checkbox to validate default settins.
 - d. Save your changes and close Mozilla.
- 2. Launch Mozilla to connect directly to the PAM web site.
- 3. When prompted, enter the appropriate Administrator or Operator **User Name** and **Password**. The PAM home page appears.

Simultaneous Connection to the PAM Web Site

Several users can access the PAM Web site simultaneously.



Important:

If configuration changes are made, they may not be visible to other users unless they refresh the PAM Tree.

As Customer Administrator, you can view the list of PAM users currently logged onto the PAM Web site by clicking Hardware Monitor \rightarrow PAM Web Site.

The Web site version and a list of connected users and session details are displayed in the **Control** pane.

aScale	PAM We	b Site Monitoring	Bull
PAM WEB Site PamSit	te Version : 7.0.0.0		
State Contest			
	Sessions	on Pamsite	
Current	Sessions Connected users	on Pamsite Session started at	

The icon indicates the current session.

Figure 28. PAM Web site session details

You can also open several browser sessions from the same computer to obtain different views of system operation. For example, as Customer Administrator, you may want to open a first session for permanent and easy access to powering on/off functions, a second session for access to system histories and archives, and a third session for access to configuration menus, as shown in the following figure.

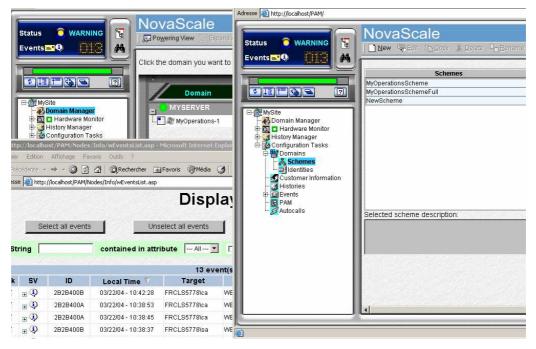
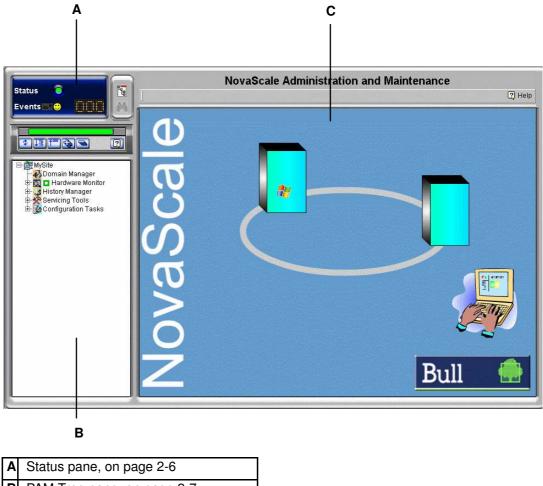


Figure 29. Multiple session example

PAM User Interface

The PAM user interface is divided into three areas in the browser window: a **Status** pane, a **PAM Tree** pane, and a **Control** pane.



	Status pane, on page 2-6
В	PAM Tree pane, on page 2-7
С	Control pane, on page 2-6

Figure 30. PAM user interface

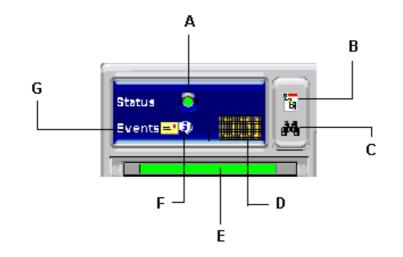
Checking Server Status via PAM

The PAM user interface allows you to check system status at a glance. If the **Functional Status** icon in the **Status** pane and the **CSS Availability Status** bar are green, the server is ready to be powered up.

PAM Status Pane

The **Status** pane, which is automatically refreshed every few seconds, provides quick access to the following synthetic information:

- Functional Status: if the system is operating correctly, the status icon is green,
- Event Messages: shows the number and maximum severity of pending event messages,
- CSS Availability Status: if the CSS Module PMB is detected as present, is configured correctly, and is ready to operate, the status bar is green.



Α	System Functional Status icon	Ε	CSS Availability Status icon
В	Presence/Functional Status toggle button	F	Event Message Severity icon
С	Event Message Viewer	G	New Event Message icon
D	Pending Event Message icon		

Figure 31. Status pane

PAM Control Pane

When an item is selected in the **PAM Tree** pane, details and related commands are displayed in the **Control** pane, which is automatically refreshed at one minute intervals.

CSS Availability Status Bar

The CSS availability status bar reflects the operational status of the data link(s) between the Platform Management Board (PMB) embedded in each CSS Module and the PAP Unit. Each CSS module is represented by a zone in the status bar.

- When a CSS Module PMB is detected as **PRESENT**, the corresponding zone in the status bar is **GREEN**.
- When a CSS Module PMB is detected as ABSENT, the corresponding zone in the status bar is RED.
- When you hover the mouse over the status bar, an **Infotip** displays the **presence status** of CSS Module PMB PAP Unit data links.

The following figure represents the status bar for a bi–module server. One CSS Module PMB is detected as PRESENT and the other is detected as ABSENT.



A: Bar red (CSS Module_0 not available)

Figure 32. CSS Module availability status bar (bi-module server)

PAM Tree Pane

Note:

The PAM tree building process may take one to two minutes. The PAM tree pane is refreshed on request.

The PAM Tree pane provides access to server administration and maintenance features:

Tree Nodes	Function
Domain Manager	to power on / off and manage domains. See Chapter 3. Manag- ing Domains.
Hardware Monitor	to display the status of hardware components and assemblies. See Chapter 4. Monitoring the Server.
History Manager	to view logs and manage archives.See Chapter 4. Monitoring the Server.
Configuration Tasks	to customize server features.See Chapter 5. Tips and Features for Administrators.

Table 3. PAM Tree nodes

PAM Tree Toolbar

The PAM Tree toolbar, located at the top of the PAM Tree, is used to refresh, expand, or collapse the tree display.



Toolbar Buttons	Explanation
\$	Refresh /rebuild the PAM Tree to view changes.
1E	Expand the complete tree.
Ţ =	Collapse the complete tree.
-	Expand selected node.
9	Collapse selected node.
2	View the related Help topic.

Figure 33. PAM Tree toolbar

Setting up Users

As Customer Administrator, you must set up user accounts and passwords to control access to the PAP unit. See *Setting up PAP Unit Users*, on page 5-17.

Toggling the Local / Integrated Console Display

During the powering up / down sequences, you will be requested to toggle the local / integrated console from the PAP unit display to the server domain display, or vice versa, as explained below.



CAUTION:

Access to the local / integrated console should be restricted to Customer / Support Administrators and Operators ONLY to avoid inadvertent damage to software and/or hardware components.

The KVM Switch allows the integrated console to be used as the local server domain and local PAP unit console. KVM ports are configured as shown in Table 4.

NovaScale 5xx0 Server

8–Port KVM Switch (AutoView)	Console Display	Domain
Port A	PAP Unit	N/A
Port B (PS2)	Microsoft Windows Domain	N/A
Port C (USB)	Linux Domain	N/A

or

8–Port KVM Switch (MasterView)	Console Display	Domain
Port 1	PAP Unit	N/A
Port 2	Server Domain	N/A

NovaScale 6xx0 Server

8–Port KVM Switch	Console Display	Domain
Port 1	PAP Unit	N/A
Port 2	CSS0–Mod0–IO0	MyOperations-xx-1
Port 3	CSS0–Mod0–IO1	MyOperations-xx-2

or

16–Port KVM Switch	Console Display	Domain
Port 1	PAP Unit	N/A
Port 3	CSS0–Mod0–IO0	MyOperations-xx-1
Port 4	CSS0–Mod0–IO1	MyOperations-xx-2
Port 5	CSS0–Mod1–IO0	MyOperations-xx-3
Port 6	CSS0–Mod1–IO1	MyOperations-xx-4

Table 4.KVM port configuration

You can easily toggle from the server domain display to the PAP unit display, or vice versa:

- 1. From the keyboard, press the **Control** key twice to display the KVM Switch Command Menu.
- 2. Select the required port with the $\uparrow\downarrow$ keys and press **Enter**.
- 3. The selected display appears on the Console monitor.

Powering Up / Down Server Domains

To power up / down the server, see:

- Powering Up / Down the NovaScale 5xx0 Server Domain, on page 2-10
- Powering Up / Down NovaScale 6080/6160 Server Domains, on page 2-12
- Powering Up / Down NovaScale 6320 Server Domains, on page 2-17

Powering Up the NovaScale 5xx0 Server Domain

NovaScale 5xx0 Servers are designed to operate as single SMP systems and are delivered with one pre-configured domain.

When server status has been checked – functional status icon and CSS availability status bar green in the Status pane – the server domain can be powered up.

I Note:

If an error dialog box appears during this sequence, see Chapter 3. Managing Domains.

To power up server domains:

- 4. From the PAM Tree, click **Domain Manager** to open the **Control** pane. A dialog box invites you to load the server domain.
- Click OK to confirm. The domain appears in the Control pane. If the domain is ready to be powered up, INACTIVE is displayed in the Domain State box and the Power On button is accessible.
- 6. Select the domain and click **Power On** to power up the server domain and associated hardware components.

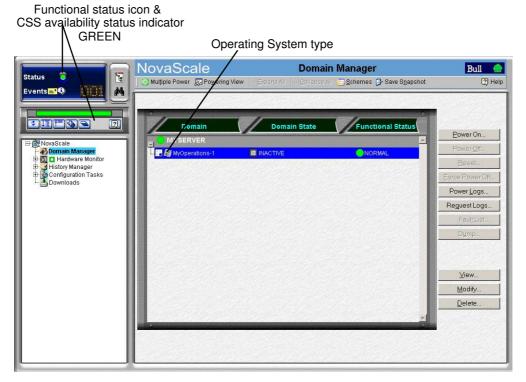


Figure 34. Domain Manager Control pane

7. Follow the power-on steps displayed in the **Domain State** box, until **RUNNING** is displayed.



Figure 35. Domain state

- 8. Toggle the local / integrated console from the PAP unit display to the server display. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 9. Wait for the Operating System to load completely. The domain is now fully functional.
- 10. Check the Operating System environment pre-installed on the domain.
- 11. As Customer Administrator, you can now prepare each domain for remote access via the Enterprise LAN and/or via the Web. See *Preparing Server Domains for Remote Access via the Enterprise LAN*, on page 2-22 and *Preparing Server Domains for Remote Access via the Web*, on page 2-24.

Powering Down the NovaScale 5xx0 Server Domain

Note:

If an error dialog box appears during this sequence, see Chapter 3. *Managing Domains*.

- 1. Shut down the Operating System to power down the domain to the stand-by mode.
- 2. Toggle the local / integrated console to the PAP unit display. **INACTIVE** is displayed in the **Domain State** box and the **Power ON** button is accessible.

I Note:

For further details about the **Power ON** / **OFF** sequences, see *Powering ON a Domain*, on page 3-14 and *Powering OFF a Domain*, on page 3-18.

- If the same PAP unit administers more than one server, all servers can be powered on simultaneously as follows:
 - a. Click Multiple Power. The Multiple Power Domains On/Off dialog opens.
 - b. Click **Power On All** \rightarrow **Execute** to power on the servers and associated hardware components.
- For further details about the **Power ON** / **OFF** sequences, see *Powering ON a Domain* and *Powering OFF a Domain* in the *User's Guide*.

Powering Up NovaScale 6080/6160 Server Domains

The NovaScale 6080/6160 Server is designed to operate as two hardware–independent SMP systems, or domains.

For easy configuration and optimum use of the physical and logical resources required for simultaneous operation, domains are defined by the Customer Administrator via the **PAM Domain Scheme** wizard.

For further details about domain configuration, see Configuring Domains, on page 5-28.

The server is delivered with a default scheme, or configuration file, called **MyOperationsScheme-xx** containing two domains, **MyOperations-xx-1** and **MyOperations-xx-2**.your An Operating System instance is pre-installed on each domain boot disk (EFI LUN). According to your requirements, identical or different Operating System instances may be pre-installed on each EFI LUN. The default scheme allows domains to be booted simultaneously or independently. A brief summary of the organization of physical and logical resources in **MyOperationsScheme-xx** is given in the following table.

I Notes:

- **xx** in the default scheme and domain names represents the Central Subsystem HW identifier (from 00 to 16). For further details, refer to *Checking PMB Code Wheel Settings*, on page 0.
- In the screen shots, tables, and examples in this guide:
 - MyOperationsScheme-xx is referred to as MyOperationsScheme
 - MyOperations-xx-1 is referred to as MyOperations-1
 - MyOperations-xx-2 is referred to as MyOperations-2
- In the screen shots in this guide, an instance of Microsoft Windows is pre-installed on **MyOperations-xx-1** and an instance of Linux is pre-installed on **MyOperations-xx-2**.

Operating System type is indicated by the Microsoft Windows \mathbb{R} or Linux Δ logo in the **Domain Identities** box.

MyOperationsScheme Organization

Domain Identity: MyOperations-1		
Hardware Cell	Cell_0	
Operating System (customer–specific)	Windows or 🔬 Linux	
EFI LUN**	*< <i>MyServer</i> >_0LU0 / < <i>SAN</i> >LUN0	
IOB	Module0_IOB0	
QBBs	Module0_QBB0, Module0_QBB1	
Domain KVM Ports	***CSS0_Mod0_IO0	
Domai	n Identity: MyOperations-2	
Hardware Cell	Cell_1	
Operating System (customer–specific)	Windows or 🔬 Linux	
EFI LUN**	*< <i>MyServer</i> >_0LU0 / < <i>SAN</i> >LUN1	
IOB	Module0_IOB1	
QBBs	Module0_QBB2, Module0_QBB3	
Domain KVM Ports	***CSS0_Mod0_IO1	

* <MyServer> = default server name, e.g.: NS6080-0, NS6160-0

** EFI LUN: xLUx = Local boot LUN device location (*Modx*LU*IOx*):

0LU0 = LUN device connected to Module0, IOB0

0LU1 = LUN device connected to Module0, IOB1

0LU2 = LUN device connected to Module1, IOB0

0LU3 = LUN device connected to Module1, IOB1

***CSSx = CSS number, Modx = Module number, IOx = IO box number

IF Note:

The NovaScale 6080 Server is equipped with QBB_0 and QBB_3, only.

 Table 5.
 MyOperationsScheme organization – mono–module server

I Note:

If an error dialog box appears during these sequences, see Chapter 3. *Managing Domains*.

To power up server domains:

- 1. From the PAM Tree, click **Domain Manager** to open the **Control** pane. You are invited to load a domain configuration scheme.
- 2. Click **Schemes.** The **Schemes List** dialog opens displaying the pre–configured scheme.
- 3. Select MyOperationsScheme and click Apply.

🖉 Schemes List Dialogue de page Web			X		
Select a scheme from the list for use as a template to define / modify the current domain configuration.					
Schemes	Author	Local Date & Time			
MyOperationsScheme	FRCLS5778\CA	04/30/04 15:38:48	<u> </u>		
Selected scheme description:			T		
Default Scheme for MyServer			* *		
Apply scheme as new configuration Add scheme Apply Add scheme Apply Preview	ne to current configuration -	<u>H</u> elp <u>C</u> lose	1		

Figure 36. Domain schemes list dialog

4. When requested, click **Yes** to confirm. **MyOperations–1** and **MyOperations–2** domains are loaded in the **Control** pane.

If the domains are ready to be powered up, **INACTIVE** is displayed in the **Domain State** boxes and the **Power On** button is accessible for each domain.

Functional status icc CSS availability statu GREEN	on & s indicator	
Status C Event:	NovaScale Domain Manager Multiple Power Provering View Expand All Collapse All Schemes Save Sgapshot Click the domain you want to manage. Save Sgapshot Save Sgapshot Save Sgapshot	Bull 🔄
NovaScale Domain Manager History Manager History Manager Downloads	Image: Server Image: Server MyOperations-1 INACTIVE MyOperations-2 INACTIVE	Power On Power Off Eorce Power Off Power Logs Reguest Logs Fault List Dump Modify Delete

Figure 37. Domain Manager Control pane

- 5. Click Multiple Power. The Multiple Power Domains On/Off dialog opens.
- Click Power On All → Execute to simultaneously power on the domains and associated hardware components.

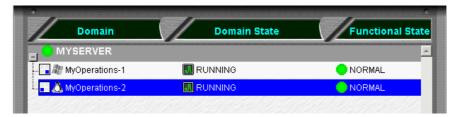
	multaneously po powered on, powered off / fo ates can only be domains, click P Jomains, click P NNING domains	ower on / po rcibly power forcibly po ower On All ower Off All or domains	red off. wered off. . A shutdow	n request i	is sent to each domain Opera	ting System. shutdown request is NOT sent to eac	h
Deselect All	Power On Al	i (Power Off	All	Eorce Power Off All		
Central subsystem	Deselect	Power On	Power Off	Force Power Off	Domains	Domain State	
MYSERVER	•	С	e	c	💽 🦓 MyOperations-1	INACTIVE	1
	e	С	C	0	■ 🛆 MyOperations-2	INACTIVE	
Exect	te			Can		Help	

Figure 38. Multiple power dialog



Domains can also be powered on sequentially from the Control pane:

- Select **MyOperations–1** in the **Control** pane and click **Power On** to power up the domain and associated hardware components.
- Select **MyOperations–2** in the **Control** pane and click **Power On** to power up the domain and associated hardware components.
- 7. Follow the power–on steps displayed in the **Domain State** boxes, until **RUNNING** is displayed in both **Domain State** boxes.





- 8. Toggle the local / integrated console from the PAP unit display to **MyOperations–1** display. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 9. Wait for the Operating System to load completely. **MyOperations–1** domain is now fully functional.
- 10. Toggle the local / integrated console from **MyOperations-1** display to **MyOperations-2** display.
- 11. Wait for the Operating System to load completely. **MyOperations–2** domain is now fully functional.
- 12. Check the Operating System environment pre-installed on each domain.
- 13. As Customer Administrator, you can now prepare each domain for remote access via the Enterprise LAN and/or via the Web. See *Preparing Server Domains for Remote Access via the Enterprise LAN*, on page 2-22 and *Preparing Server Domains for Remote Access via the Web*, on page 2-24.

Powering Down NovaScale 6080/6160 Server Domains

I Note:

If an error dialog box appears during this sequence, see Chapter 3. Managing Domains.

- 1. Shut down each Operating System to power down the corresponding domain to the stand-by mode.
- 2. Toggle the local / integrated console to the PAP unit display. **INACTIVE** is displayed in the **Domain State** boxes and the **Power ON** button is accessible for each domain.

IF Note:

For further details about the **Power ON** / **OFF** sequences, see *Powering ON a Domain*, on page 3-14 and *Powering OFF a Domain*, on page 3-18.

Powering Up NovaScale 6320 Server Domains

The NovaScale 6320 Server is designed to operate as four hardware–independent SMP systems, or domains.

For easy configuration and optimum use of the physical and logical resources required for simultaneous operation, domains are defined by the Customer Administrator via the **PAM Domain Scheme** wizard. For further details about domain configuration, see *Configuring Domains*, on page 5-28.

The server is delivered with a default scheme, or configuration file, called **MyOperationsScheme–xx**, containing up to four domains, **MyOperations–xx–1**, **MyOperations–xx–2**, **MyOperations–xx–3**, **MyOperations–xx–4**. An Operating System instance is pre–installed on each domain boot disk (EFI LUN). According to your requirements, identical or different Operating System instances may be pre–installed on each EFI LUN. The default scheme allows you to simultaneously boot all domains. A brief summary of the organization of physical and logical resources in **MyOperationsScheme–xx** is given in the following table.

IF Notes:

- **xx** in the default scheme and domain names represents the Central Subsystem HW identifier (from 00 to 16). For further details, refer to *Checking PMB Code Wheel Settings*, on page 0.
- In the screen shots, tables, and examples in this guide:
 - MyOperationsScheme-xx is referred to as MyOperationsScheme
 - MyOperations-xx-1 is referred to as MyOperations-1
 - MyOperations-xx-2 is referred to as MyOperations-2
 - MyOperations-xx-3 is referred to as MyOperations-3
 - MyOperations-xx-4 is referred to as MyOperations-4
- In the screen shots in this guide, an instance of Microsoft Windows is pre-installed on MyOperations-xx-1 and MyOperations-xx-3 and an instance of Linux is pre-installed on MyOperations-xx-2 and MyOperations-xx-4.

Operating System type is indicated by the Microsoft Windows $\boxed{\mathbb{R}}$ or Linux $\boxed{\Delta}$ logo in the **Domain Identities** box.

MyOperationsScheme Organization

Domai	n Identity: MyOperations-1
Hardware Cell	Cell_0
Operating System (customer–specific)	Windows or 🔬 Linux
EFI LUN**	*< <i>MyServer</i> >_0LU0 / < <i>SAN</i> >LUN0
ЮВ	Module0_IOB0
QBBs	Module0_QBB0, Module0_QBB1
Domain KVM Ports	***CSS0_Mod0_IO0
Domai	n Identity: MyOperations-2
Hardware Cell	Cell_1
Operating System (customer–specific)	Windows or 🔬 Linux
EFI LUN**	*< <i>MyServer</i> >_0LU0 / < <i>SAN</i> >LUN1
ЮВ	Module0_IOB1
QBBs	Module0_QBB2, Module0_QBB3
Domain KVM Ports	***CSS0_Mod0_IO1
	n Identity: MyOperations–3 NovaScale 6320 Server)
Hardware Cell	Cell_2
Operating System (customer–specific)	Windows or 🔬 Linux
EFI LUN**	*< <i>MyServer</i> >_0LU0 / < <i>SAN</i> >LUN2
ЮВ	Module1_IOB0
QBBs	Module1_QBB0, Module1_QBB1
Domain KVM Ports	***CSS0_Mod1_IO0
	n Identity: MyOperations–4 NovaScale 6320 Server)
Hardware Cell	Cell_3
Operating System (customer–specific)	Windows or 🔬 Linux
EFI LUN**	*< <i>MyServer</i> >_0LU0 / < <i>SAN</i> >LUN3
IOB	Module1_IOB1
QBBs	Module1_QBB2, Module1_QBB3
Domain KVM Ports	***CSS0_Mod1_IO1

* <*MyServer*> = default server name, e.g.: NS6080–0, NS6160–0, NS6320–0

** EFI LUN: xLUx = Local boot LUN device location (*Modx*LU*IOx*):

0LU0 = LUN device connected to Module0, IOB0

0LU1 = LUN device connected to Module0, IOB1

0LU2 = LUN device connected to Module1, IOB0

0LU3 = LUN device connected to Module1, IOB1

***CSSx = CSS number, Modx = Module number, IOx = IO box number

Table 6. MyOperations Scheme organization – bi–module server

I Note:

If an error dialog box appears during these sequences, see Chapter 3. Managing Domains.

To power up server domains:

- 3. From the PAM Tree, click **Domain Manager** to open the **Control** pane. You are invited to load a domain configuration scheme.
- 4. Click **Schemes**. The **Schemes List** dialog opens displaying the pre-configured scheme.
- 5. Select MyOperationsScheme and click Apply.

🚰 Schemes List Dialogue de page Web			×
Select a scheme from the list for use as a template to) define / modify the current don	nain configuration.	
Schemes	Author	Local Date & Time	
MyOperationsScheme	FRCLS5778\CA	04/30/04 15:38:48	A
			•
Selected scheme description:			
Default Scheme for MyServer			4
Apply scheme as new configuration Add scheme Preview Apply Preview	e to current configuration - w <u>Ad</u> d	Help <u>C</u> lose	1

Figure 40. Domain schemes list dialog

6. When requested, click Yes to confirm. MyOperations–1, MyOperations–2, MyOperations–3, and MyOperations–4 domains are loaded in the Control pane. If the domains are ready to be powered up, INACTIVE is displayed in the Domain State boxes and the Power On button is accessible for each domain.

Functional status id CSS availability status GREEN				
	/	, Operating Sys	stem type	
Status	NovaScale		ain Manager se All <u>S</u> chemes 🖓 Save S <u>n</u> apshot	Bull 🔶 🛛 Help
NovaScale NovaScale NovaScale NovaScale NovaScale Scale S	Click the domain you want to ma	Domain State	Functional Status	Bower On Power Off Beset Force Power Off
	. MyOperations-4		NORMAL	Power Logs Reguest Logs Fault Liet Dump
				<u>V</u> iew <u>M</u> odify Delete

- Figure 41. Domain Manager Control pane
- 7. Click Multiple Power. The Multiple Power Domains On/Off dialog opens.

 Click Power On All → Execute to simultaneously power on the domains and associated hardware components.

main Operating System cancel all selected op	i. erations, click De	select All.				shutdown request is NOT sent to each	
Deselect All Central subsystem	Power On Al	Power On	Power Off	Force Power Off	Eorce Power Off All Domains	Domain State	
MYSERVER	c	C	с	C	MyOperations-1		
	·	С	e	0	💽 🛆 MyOperations-2	INACTIVE	
	e	0	G	0	MyOperations-3	INACTIVE	
	c	С	0	0	📑 🛆 MyOperations-4	INACTIVE	

Figure 42. Multiple power dialog

I Note:

Domains can also be powered on sequentially from the Control pane:

- Select MyOperations–1 in the Control pane and click Power On to power up the domain and associated hardware components. Repeat this step for each domain in the Control pane.
- Follow the power-on steps displayed in the Domain State boxes, until RUNNING is displayed in all Domain State boxes.

	Domain		Domain State	Function	nal State
=1 🔴 M'	YSERVER				4
- - & I	MyOperations-1	III F	RUNNING	😑 NORMAL	
	MyOperations-2	🛄 F	RUNNING	😑 NORMAL	
. - Ay 1	MyOperations-3	III F	RUNNING	😑 NORMAL	
L <mark>FLÅ</mark>	MyOperations-4	100 F	RUNNING		

Figure 43. Domain state

- 10. Toggle the local / integrated console from the PAP unit display to the first domain display. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 11. Wait for the Operating System to load completely. The domain is now fully functional.
- 12. Toggle the local / integrated console from this domain display to the next domain display.
- 13. Wait for the Operating System to load completely. The domain is now fully functional.
- 14. Repeat Steps 12 and 13 for each domain.
- 15. Check the Operating System environment pre-installed on each domain.

16.As Customer Administrator, you can now prepare each domain for remote access via the Enterprise LAN and/or via the Web. See *Preparing Server Domains for Remote Access via the Enterprise LAN*, on page 2-22 and *Preparing Server Domains for Remote Access via the Web*, on page 2-24.

Powering Down NovaScale 6320 Server Domains

I Note:

If an error dialog box appears during this sequence, see Chapter 3. Managing Domains.

- 1. Shut down each Operating System to power down the corresponding domain to the stand-by mode.
- 2. Toggle the local / integrated console to the PAP unit display. **INACTIVE** is displayed in the **Domain State** boxes and the **Power ON** button is accessible for each domain.

I Note:

For further details about the **Power ON** / **OFF** sequences, see *Powering ON a Domain*, on page 3-14 and *Powering OFF a Domain*, on page 3-18.

Preparing Server Domains for Remote Access via the Enterprise LAN

Access to the local / integrated console should be restricted to Customer / Support Administrators and Operators ONLY to avoid inadvertent damage to software and/or hardware components.

Image: Note:

Required networking data is indicated in the *Read Me First* document delivered with the server and is also recorded under the corresponding PAM **Domain Identity**. Customer Administrator rights are required for all PAM configuration tasks.

Microsoft Windows Domain

- 1. Toggle the integrated console to the corresponding Windows domain port. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 2. From the Windows desktop, right click **My Computer** and select **Properties** \rightarrow **Remote**.
- 3. Check the Allow remote connection box.
- 4. Share the <system root>\system32\clients\tsclient directory via the Explorer.
- 5. Toggle the integrated console to the PAP unit port.
- 6. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Identities to open the Identities page.
- 7. Select the corresponding Windows domain from the list and click **Edit** to open the **Edit an Identity** dialog.
- 8. Check that the **Network Name**, **IP Address**, and **URL** fields are completed. If not, complete these fields with the networking data entered during the Windows setup completion procedure and click **OK**.

Linux Redhat Domain

- 1. Toggle the integrated console to the corresponding Linux domain port. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 2. From the Linux desktop, enable remote connection via telnet, rlogin, ftp, ...:
- From the PAP unit Internet Explorer or Mozilla browser, enter the Webmin URL: http://<networkname>:10000, where <networkname> is the network name given to the server domain during the Linux setup completion procedure. The Login to Webmin dialog box opens.
- 4. Click the Networking icon. The Networking main page opens.
- 5. Click Extended Internet Services to display the list of available services.
- 6. From the service list, check that **Yes** is displayed in the status column. If **No** is displayed in the status column, proceed as follows to enable the service:
 - a. Select the required service from the list.
 - b. Complete the fields accordingly.
 - c. Click Yes after Service enabled?
 - d. Click Save.
- 7. Repeat step 3 for each required service.

- 8. Click Apply changes to apply all changes.
- 9. Click Return to index.
- 10.Click Log Out to exit Webmin.
- 11. Toggle the integrated console to the PAP unit port.
- 12. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Identities to open the Identities page.
- 13. Select the corresponding Linux domain from the list and click **Edit** to open the **Edit an Identity** dialog.
- 14. Check that the **Network Name**, **IP Address**, and **URL** fields are completed. If not, complete these fields with the networking data entered during the Linux setup completion procedure and click **OK**.

Linux SuSE Domain

- 1. Toggle the integrated console to the corresponding Linux domain port. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 2. From the Linux desktop, enable remote connection via telnet, rlogin, ftp, ...:
- 3. Launch the yast2 command to open the Yast Control Center screen.
- 4. Click the Network/Basic icon in the left pane.
- 5. Click Start/stop services (inetd).
- 6. From the **Network Services** page, select **On with customer configuration** and click **Next** to open the **Enable/disable network services** page.
- 7. From the service list, check that **Active** is displayed in the status column. Proceed as follows to enable the service:
 - a. Select the required service from the list.
 - b. Click Activate.
- 8. Repeat step 5 for each required service.
- 9. Click **Finish** to apply all changes.
- 10.Click Close to exit yast2.
- 11. Toggle the integrated console to the PAP unit port.
- 12. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Identities to open the Identities page.
- 13. Select the corresponding Windows domain from the list and click **Edit** to open the **Edit an Identity** dialog.
- 14. Check that the **Network Name**, **IP Address**, and **URL** fields are completed. If not, complete these fields with the networking data entered during the Linux setup completion procedure and click **OK**.

Preparing Server Domains for Remote Access via the Web



Remote access via the Web is a potential security hazard. Customers are strongly advised to protect their systems with up-to-date protection devices such as virus-prevention programs and firewalls, and to maintain a detailed record of authorized users.

Microsoft Windows Domain

- 1. Toggle the integrated console to the corresponding Windows domain port. See *Toggling the Local / Integrated Console Display*, on page 2-9.
- 2. Left click Start \rightarrow Control Panel \rightarrow Add or Remove Programs.
- 3. Select Add / Remove Windows Components.
- Click Web Application Services → Details → Internet Information Services → Details → World Wide Web Services → Details → Remote Desktop Web Connection. Validate where required by clicking OK or Next.
- 5. Insert the the Microsoft Windows CD-ROM in the CD-ROM / DVD drive.
- 6. The Microsoft Windows setup wizard is launched automatically and guides you through the setup completion procedure.
- 7. Toggle the integrated console to the PAP unit port.
- 8. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Identities to open the Identities page.
- 9. Select the corresponding Windows domain from the list and click **Edit** to open the **Edit an Identity** dialog.
- 10. Check that the **Network Name**, **IP Address**, and **URL** fields are completed. If not, complete these fields with the networking data entered during the Windows setup completion procedure and click **OK**.

Linux Domain

Virtual Network Computing (VNC) remote control software allows users to interact with the server from a remote computer via Internet.

The server domain is ready for remote connection.

- 1. Toggle the integrated console to the PAP unit port.
- 2. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Identities to open the Identities page.
- 3. Select the corresponding Linux domain from the list and click **Edit** to open the **Edit an Identity** dialog.
- 4. Check that the **Network Name**, **IP Address**, and **URL** fields are completed. If not, complete these fields with the networking data entered during the Linux setup completion procedure and click **OK**.

Connecting to a Server Domain via the Enterprise LAN

Microsoft Windows Domain

- 1. Check that **Client for Microsoft Networks** is installed on the remote computer and that the remote computer is connected to the same LAN as the server domain.
- 2. Check that **Client for Remote Desktop** is installed on the remote computer. If the **Remote Desktop Connection** menu does not exist:
 - a. Click Start \rightarrow Run.
 - b. Type \\<networkname>\tsclient\win32\setup.exe in the box, where <networkname> is the network name given to the server domain during the Windows setup completion procedure.
- 3. Connect to the server domain by running:
 - a. Microsoft Windows XP (and later): All Programs \rightarrow Accessories \rightarrow Communication \rightarrow Remote Desktop Connection.
 - b. All other versions of Microsoft Windows: **Programs** \rightarrow **Remote Desktop Connection** \rightarrow **OK**.
- 4. Type Administrator (default administrator user name) in the User name field.
- 5. Type the administrator password defined during the Windows setup completion procedure in the **Password** field.
- 6. The remote computer connects to the server domain.

Linux Domain

1. Enter the following command:

ssh *<networkname>* –I user_name, where *<networkname>* is the network name given to the server domain during the Linux setup completion procedure.

2. The remote computer connects to the server domain.

Connecting to the Server via the Web

Microsoft Windows Domain

- 1. Check that **Internet Explorer** (6 or later) and **Terminal Server Client** are installed on the remote computer.
- Launch the Internet Explorer or Netscape browser and connect to the server desktop, url: http://<networkname>/tsweb/, where <networkname> is the network name given to the server domain during the Windows setup completion procedure. See the Read Me First document delivered with the server.

Linux Domain

Virtual Network Computing (VNC) remote control software allows users to interact with the server from a remote computer via Internet.

- 1. Check that VNC Server is installed.
- 2. Execute the **vncpasswd** command to initialize the password.
- 3. Execute the vncserver command to start the process.
- Record the *<networkname>* display number for the remote computer, where *<networkname>* is the network name given to the server domain during the Linux setup completion procedure.

Installing Applications

When you install an application protected by a system serial number, you are requested to supply this serial number.

For optimum flexibility, PAM software allows you to replace the physical serial number by a logical licensing number so that you can run the application on any physical partition and, in the case of extended systems, on any of the Central Subsystems within the extended configuration.

For details on how to define and manage the logical licensing number, please refer to *Creating, Editing, Copying, Deleting a Domain Identity*, on page 5-47.

Chapter 3. Managing Domains

This chapter explains how, as Customer Administrator and/or Customer Operator, you can manage server domains. It includes the following topics:

- Introducing PAM Domain Management Tools, on page 3-2
- Managing Domain Configuration Schemes, on page 3-5
- Powering On a Domain, on page 3-14
- Powering Off a Domain, on page 3-18
- Forcing a Domain Power Off, on page 3-21
- Manually Resetting a Domain, on page 3-24
- Viewing the Domain Fault List, on page 3-25
- Performing a Domain Memory Dump, on page 3-26
- Viewing Domain Functional Status, on page 3-27
- Viewing Domain Power Logs, on page 3-28
- Viewing Domain Powering Sequences, on page 3-29
- Viewing Domain BIOS Info, on page 3-30
- Viewing Domain Request Logs, on page 3-31
- Viewing Domain Configuration, Resources and Status, on page 3-32
- Modifying Domain Configuration, on page 3-39
- Swapping a Domain EFI Boot LUN, on page 3-41
- · Linking a LUN to a Fibre Channel Host, on page 3-52
- Adding a Data LUN, on page 3-43
- Removing a Data LUN, on page 3-48
- Adding Cells to a Domain, on page 3-55
- · Removing Cells from a Domain, on page 3-58
- Deleting a Domain, on page 3-66
- · Locking / Unlocking Hardware Elements, on page 3-62
- · What to Do if an Incident Occurs, on page 3-69

I Note:

Customer Administrators and Customer Operators are respectively advised to consult the *Administrator's Memorandum*, on page xxviii or the *Operator's Memorandum*, on page xxx for a detailed summary of the everyday tasks they will perform.

For further information about user accounts and passwords, see *Setting up PAP Unit Users*, on page 5-17.



Important:

Certain domain configuration and management tools are reserved for use with partitioned servers and extended systems. Please contact your Bull Sales Representative for sales information.

Introducing PAM Domain Management Tools



Important:

Certain domain configuration and management tools are reserved for use with partitioned servers and extended systems. Please contact your Bull Sales Representative for sales information.

A Bull NovaScale Server domain englobes all the hardware and software resources managed by an Operating System instance.

NovaScale 5xx0 Servers are designed to operate as single SMP systems and are delivered with one pre-configured domain.

NovaScale 6xx0 Servers are designed to operate as one, two, three or four hardware-independent SMP systems or domains, each running an Operating System instance and a specific set of applications.

The PAM Domain Manager is at the heart of server operation. Customer Administrators and Operators have equal access rights to Domain Manager functions and the Control pane is frequently used during operation. The Domain Manager Control pane gives access to all domain commands and domain details.

What You Can Do

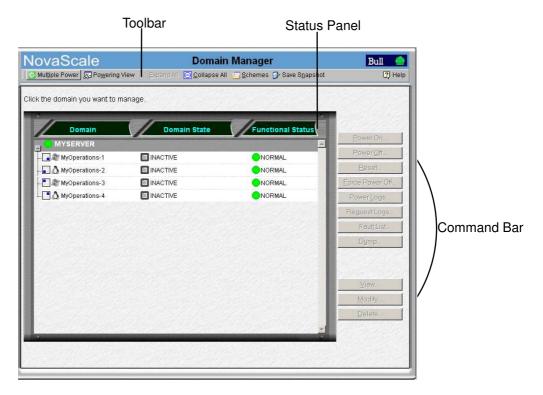
Via the Domain Manager Control pane, you can:

- Manage domain configuration schemes
- Power on a domain
- Power off a domain
- Perform a domain reset
- Perform a domain force power off
- Request a domain memory dump
- View functional status
- View power logs
- View powering sequences
- View BIOS info
- View request logs
- View domain configuration, resources and status



Access to certain hardware resources, such as system disks can be limited by using the Exclusion / Inclusion function. See Limiting Access to Hardware Resources, on page 5-62 and Excluding / Including Hardware Elements, on page 4-25. This function must be used with care.

From the PAM Tree, click **Domain Manager** to open the **Control** pane.



	Toolbar
Multiple Power	Allows you to simultaneously power on /off several domains. See <i>Powering ON a Domain</i> , on page 3-14 and <i>Powering OFF a Do-main</i> , on page 3-18.
Powering View	Dynamically displays domain power sequences and gives access to Power Logs , see details on page 3-28 and BIOS Info , see details on page 3-30.
Expand All	Expands the list of domains included in the current domain con- figuration.
Schemes	Loads a selected scheme and displays Scheme Properties , see details on page 3-8.
Save Snapshot	Saves current domain configuration as a new scheme for future use, see details on page 3-11.
	Status Panel
Domain Identities	The names given to clearly identify domains, see details on page 5-28.
Domain State	Power sequence state. See <i>Powering ON a Domain</i> , on page 3-14 and <i>Powering OFF a Domain</i> , on page 3-18.
Functional Status	Status of the last action performed on a domain. See <i>Viewing Domain Functional Status</i> , on page 3-27.

	Command Bar
Power On	Powers on the selected domain, see details on page 3-14.
Power Off	Powers off the selected domain, see details on page 3-18.
Reset	Resets the selected domain, see details on page 3-24.
Force Power Off	Forcibly powers off the selected domain, see details on page 3-21.
Power Logs	Displays power sequence logs, see details on page 3-28.
Request Logs	Displays Power On, Power Off, and Reset requests and request- ors, see details on page 3-31.
Fault List	Gives access to the domain fault list, see details on page 3-25.
Dump	Performs a domain memory dump, see details on page 3-26.
View	Displays Domain Resources , see details on page 3-32 and BIOS Info , see details on page 3-30 and gives access to the Domain Modification dialog, see details on page 3-39.
Modify	Used to change current domain settings, see details on page 3-39.
Delete	Removes the selected domain from the current domain configu- ration, see details on page 3-66.

Table 7. PAM Domain Manager tools

Managing Domain Configuration Schemes



Important:

Reserved for partitioned servers and extended systems. Certain features described below are only available if you are connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

What You Can Do

- View a domain configuration scheme
- Load a domain configuration scheme
- Add domains to the current domain configuration
- Replace the current domain configuration
- Save the current domain configuration snapshot

A **Domain Configuration Scheme** is the template or configuration file used to define and manage a set of domains that can be active simultaneously. For easy configuration and optimum use of the physical and logical resources required for simultaneous operation, domains are defined via the **PAM Domain Configuration Scheme** wizard.

I Note:

Server components and configuration may differ according to site requirements.

NovaScale 5xx0 Server

NovaScale 5xx5 Servers are designed to operate as single SMP systems and are delivered with one pre-configured domain.

NovaScale 6080/6160 Servers

NovaScale 6080/6160 Servers are designed to operate as one or two hardware–independent domains. Servers are delivered with a pre–configured domain configuration scheme called **MyOperationsScheme** containing one or two domains, **MyOperations–1** and **MyOperations–2**, allowing you to manage and administer all server resources.

NovaScale 6320 Server

The NovaScale 6320 Server is designed to operate as one, two, three or four hardware–independent domains. The server is delivered with a pre–configured domain configuration scheme called **MyOperationsScheme** containing one to four domains, **MyOperations–1**, **MyOperations–2**, **MyOperations–3** and **MyOperations–4**, allowing you to manage and administer all server resources.

An Operating System instance is pre–installed on each domain boot disk (EFI LUN). According to your requirements, identical or different Operating System instances may be installed on each EFI LUN. A brief summary of the organization of physical and logical resources in **MyOperationsScheme** is given in *MyOperationsScheme Organization*, on page 3-12.

I Note:

As Customer Administrator, you may configure other schemes for domain management. For further details about domain configuration options, see *Configuring Domains*, on page 5-28.

To power on server domains, you must first load the required **Domain Configuration Scheme** from the **Domain Manager** Control pane. Once the domain configuration scheme has been loaded, domains can be powered up simultaneously or sequentially.

Synchronizing NovaScale 5xx0 Server Domains

The **Synchronize Domains** command is used to load the NovaScale 5xx0 Server domain. Each NovaScale 5xx0 Server is delivered with one pre–configured domain.

To load the server domain:

Click **Synchronize Domains** in the toolbar. The server domain(s) appear(s) in the Control pane for management.

The other **Schemes** tool options are reserved for partitioned (NovaScale 6xx0 Servers) or extended systems. See *Configuring and Managing Extended Systems*, on page 5-108.

I Note:

Extended systems: this command will load all the NovaScale 5xx5 Server domains adminstered by your PAP unit.

Viewing a Domain Configuration Scheme

Before loading a domain configuration scheme, you may want to know more about its scope.

To view a scheme:

- 1. Click Domain Manager to open the Control pane.
- 2. Click Schemes in the Toolbar to open the Schemes List dialog.

🖉 Schemes List Dialogue de page Web			×
Select a scheme from the list for use as a template t	o define / modify the current do	main configuration.	
Schemes	Author	Local Date & Time	
MyOperationsScheme	FRCLS5778\CA	04/30/04 15:38:48	
			-
			-
Selected scheme description:			
Default Scheme for MyServer			
J			
EApply scheme as new configuration — EAdd schem	ne to current configuration –		
Preview Apply Previe	Add	Help Close	1
Preview Apply Previe	ew <u>Ad</u> d	Help <u>C</u> lose	1
·			

Figure 44. Schemes list dialog

3. Select the required Scheme from the list and click Preview to view scheme properties.

NovaScale 6080/6160 Server

cheme : escription :	-	OperationsScheme fault Scheme for MyServer		A V	
	,				Deta LUNs
CellBlocks MYSERVER	D	Domain Identities	EFILUNS	Data LUNs	LS
	D1	MyOperations-1	MYSERVER_0LU0	<< No Data LUNs >>	
	02	A MyOperations-2	MYSERVER_0LU1	<< No Data LUNs >>	
D2 D1					
			Close		

NovaScale 6320 Server

escription :		OperationsScheme fault Scheme for MyServer		<u>~</u>	
	-			×	
CellBlocks	D	Domain Identities	EFILUNS	Data LUNs	Data LUNs
MYSERVER	D1	At MyOperations-1	MYSERVER_OLUO	<< No Data LUNs >>	
D3 D4	D2	∆ MyOperations-2	MYSERVER_OLU1	<< No Data LUNs >>	
D2 D1	D3	MyOperations-3	MYSERVER_0LU2	<< No Data LUNs >>	
	D4	A MyOperations-4	MYSERVER_0LU3	<< No Data LUNs >>	

CellBlocks	Shows the Central Subsystems included in the scheme and how they are partitioned into domains.
D	Identifies physical partitions.
Domain Identi- ties	Shows the Identities allocated to each domain.
EFI LUNs	Indicates the EFI LUNs used to boot each domain.
Data LUNs	Indicates the Data LUNs used by each domain.
L	Indicates whether domain boot and data LUNs are linked to a fibre channel host. Reserved for systems connected to a SAN.
S	Indicates domain configuration status. A Green status icon indicates that the domain is configured correctly and is ready for use, a Red status icon indicates that the domain is not configured correctly and is not ready for use. If the status icon is Red, see <i>Configuring Domains</i> , on page 5-28.

Figure 45. Scheme properties dialog

Loading a Domain Configuration Scheme

To power on server domains, you must first load the required **Domain Configuration Scheme** from the **Domain Manager** Control pane. Once the domain configuration scheme has been loaded, domains can be powered up simultaneously or independently.

To load a scheme:

1. Click **Domain Manager** to open the Control pane. If a scheme has not been previously loaded, you are invited to load one.

INote:

If the required scheme is already loaded, it is available for domain management. If a scheme is already loaded, but is not the required scheme, see *Adding Domains to the Current Domain Configuration* and *Replacing the Current Domain Configuration* below.

2. Click Schemes in the Toolbar to open the Schemes List dialog.

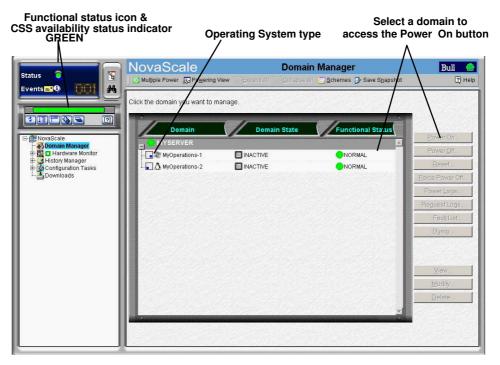
🖉 Schemes List Dialogue de page Web			X
Select a scheme from the list for use as a template to) define / modify the current do	main configuration.	
Schemes	Author	Local Date & Time	
MyOperationsScheme	FRCLS5778\CA	04/30/04 15:38:48	
			-
Selected scheme description:			_
Default Scheme for MyServer			
j · · ·			-
Apply scheme as new configurationAdd scheme	e to current configuration –		
	w Add	Help Close	1
Preview <u>Apply</u> Previe		<u>H</u> elp <u>C</u> lose	1

Figure 46. Schemes list dialog

- 3. Select the required **Scheme** from the list and click **Preview** to view scheme properties. See *Viewing a Domain Configuration Scheme*, on page 3-6.
- 4. Click **Apply**. A dialog box informs you that the selected scheme will replace the current domain configuration.
- 5. Click **Yes** to confirm. All the domains included in the selected scheme are loaded in the Control pane and are available for management.

If the domains are ready to be powered up, **INACTIVE** is displayed in the **Domain State** boxes. The **Power On** button becomes accessible once a domain has been selected.

NovaScale 6080/6160 Server



NovaScale 6320 Server

Functional status i CSS availability statu GREEN	con & s indicator Opera	ting System type	4	ct a domain Power On button Λ
Status	NovaScale Mutple Power Powering V Click the domain you want to ma <u>Domain</u> MYSE ⁷ VER Click the domain you want to ma <u>NWSE⁷ VER</u> Click the domain you want to ma <u>NWSE⁷ VER</u>	iew Europei OCollaps	ain Manager e All Schemes S Save Spaps Functional Status NORMAL NORMAL NORMAL NORMAL NORMAL	hot Bull Bull Power On Power On Power On Power On Power Logs Fault List Dump Modify Delete

Figure 47. Domain Manager control pane



To display an Infotip listing the domain IP address, network name, cell composition and/or EFI LUN, hover the mouse over the icon:

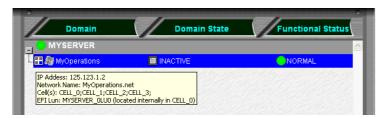


Figure 48. Domain Infotip

Adding Domains to the Current Domain Configuration

A scheme can include domains from one or more Central Subsystems. More domains can be made available for domain management by adding one or more schemes to the current domain configuration.

Notes:

- New domains can only include resources that are **INACTIVE** in the current domain configuration.
- The current domain configuration can be partially replaced by first deleting **INACTIVE** domains and then adding a new domain scheme
- New domains must be configured via **Configuration Tasks** before they are available for domain management. For further details, see *Configuring Domains*, on page 5-28.

To add domains:

- 1. Click Domain Manager to open the Control pane.
- 2. Click Schemes in the Toolbar to open the Schemes List dialog.
- 3. Select the required **Scheme** from the list and click **Preview** to view scheme properties. See *Viewing Domain Configuration Schemes*, on page 3-6.
- 4. Click **Add**. All the domains included in the scheme added are now available for management in the Control pane.

Replacing the Current Domain Configuration

Distance In the Image American Image Ame American Image American I

All domains must be **INACTIVE** before the current domain configuration can be replaced.

To replace the current domain configuration:

- 1. Click Domain Manager to open the Control pane.
- 2. Check that all domains are **INACTIVE**. If a domain is not **INACTIVE**, it must be powered down before the current domain configuration can be replaced. See *Powering OFF a Domain*, on page 3-18.
- 3. If required, save the current domain configuration. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.
- 4. Click Schemes in the Toolbar to open the Schemes List dialog.
- 5. Select the required scheme from the list and click **Preview** to view scheme properties. See *Viewing a Domain Configuration Scheme*, on page 3-6.

- 6. Click **Apply**. A dialog box informs you that the selected scheme will replace the current domain configuration.
- 7. Click **Yes** to confirm. All the domains included in the selected scheme are loaded in the Control pane and are available for management.

Saving the Current Domain Configuration Snapshot

You may want to save the current domain configuration, in particular if more than one scheme has been loaded and/or if you have modified domain configuration. When you save the current domain configuration, you create a new domain configuration scheme which is then available for domain management.

To save the current domain configuration snapshot:

- 1. Click Domain Manager to open the Control pane.
- 2. Click Save Snapshot. The Save Snapshot dialog opens.

🚰 Save Snapshot Dialogue de page Web			×
The current domain configuration can be saved as a	a new scheme for future use	9.	
Save As :			
		Q	R.
Description :			
J		~	
List of available schemes:			
Schemes	Author	Local Date & Time	
MyOperationsScheme	FRCLS5778\CA	04/30/04 15:38:48	<u>^</u>
			-
Selected scheme description:			
			
J			
👼 Indicates Required Field.			
& maicates required ricid.			
		Canaal	
<u>Bave</u>		Cancel	

Figure 49. Save Snapshot dialog

3. Enter a name and description for the new domain configuration scheme and click **Save**. The **Snapshot** is now available as a scheme for domain management. For further details, see *Configuring Domains*, on page 5-28.

Domain Identity: MyOperations-1					
Hardware Cell	Cell_0				
Operating System (customer–specific)	Windows or 🔬 Linux				
EFI LUN**	*< <i>MyServer</i> >_0LU0 / < <i>SAN</i> >_LUN0				
IOB	Module0_IOB0				
QBBs	Module0_QBB0, Module0_QBB1				
Domain KVM Ports	***CSS0_Mod0_IO0				
Domai	n Identity: MyOperations-2				
Hardware Cell	Cell_1				
Operating System (customer–specific)	Windows or 🔬 Linux				
EFI LUN**	*< <i>MyServer</i> >_0LU1 / < <i>SAN</i> >_LUN1				
ЮВ	Module0_IOB1				
QBBs	Module0_QBB2, Module0_QBB3				
Domain KVM Ports ***CSS0_Mod0_IO1					
	n Identity: MyOperations–3 NovaScale 6320 Server)				
Hardware Cell	Cell_2				
Operating System (customer–specific)	Windows or 🔬 Linux				
EFI LUN**	*< <i>MyServer</i> >_0LU2 / < <i>SAN</i> >_LUN2				
IOB	Module1_IOB0				
QBBs	Module1_QBB0, Module1_QBB1				
Domain KVM Ports	***CSS0_Mod1_IO0				
	n Identity: MyOperations–4 NovaScale 6320 Server)				
Hardware Cell	Cell_3				
Operating System (customer–specific)	Windows or 🔬 Linux				
EFI LUN**	*< <i>MyServer</i> >_0LU3 / < <i>SAN</i> >_LUN3				
ЮВ	Module1_IOB1				
QBBs	Module1_QBB2, Module1_QBB3				
Domain KVM Ports	***CSS0_Mod1_IO1				

MyOperationsScheme Organization – NovaScale 6xx0 Servers

* <*MyServer>* = default server name, e.g.: NS6080–0, NS6160–0, NS6320–0

** EFI LUN: xLUx = Local boot LUN device location (*Modx*LU*IOx*):

0LU0 = LUN device connected to Module0, IOB0

0LU1 = LUN device connected to Module0, IOB1

0LU2 = LUN device connected to Module1, IOB0

0LU3 = LUN device connected to Module1, IOB1

***CSSx = CSS number, Modx = Module number, IOx = IO box number

Operating System type is indicated by the Microsoft Windows Reference or Linux Area logo in the **Domain Identities** box.

Table 8. MyOperations Scheme organization

I Notes:

- In the screen shots, tables, and examples in this guide:
 - MyOperationsScheme-xx is referred to as MyOperationsScheme
 - MyOperations-xx-1 is referred to as MyOperations-1
 - MyOperations-xx-2 is referred to as MyOperations-2
 - MyOperations-xx-3 is referred to as MyOperations-3
 - MyOperations-xx-4 is referred to as MyOperations-4
- **xx** in the default scheme and domain names represents the Central Subsystem HW identifier (from 00 to 16). For further details, refer to *PMB LEDs and Code Wheels*, on page 4-46.

Powering On a Domain

What You Can Do

During the domain power-on sequence, you can:

- View functional status
- View power logs
- View powering sequences
- View BIOS info
- View request logs
- View domain configuration, resources and status



Important:

Certain domain configuration and management tools are reserved for use with partitioned servers and extended systems. Please contact your Bull Sales Representative for sales information.

Once connected to the Customer's site power supply, the server initializes to the stand-by mode and the integrated PAP unit powers up. The server is not equipped with a physical power button and server domains are powered up from the PAM **Domain Manager** Control pane.

Check server functional status via the PAM **Status Pane**. If functional status is normal and the **CSS Availability** bar is green, server domains can be powered up.

I Notes:

- When more than one domain is loaded in the Control pane, domains can be powered up sequentially or simultaneously. See *Powering on a Single Domain*, on page 3-14 and *Powering On Multiple Domains*, on page 3-15.
- Server domains may be powered up even if the server presents a minor fault. See *System Functional Status*, on page 4-4. However, you are advised to contact your Customer Service Engineer so that the fault can be repaired.

Powering On a Single Domain

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- If the domain is already loaded, it is available for domain management. Go to Step 2 below.
- If the domain is not already loaded, click Synchronize Domains in the toolbar to load the domain.

NovaScale 6xx0 Servers

1. Click Domain Manager to open the Control pane:

- If the required domain configuration scheme is already loaded, the corresponding domain(s) are available for domain management. Go to Step 2.
- If a scheme has not been previously loaded, you are invited to select and load a scheme. See Viewing a Domain Configuration Scheme, on page 3-6 and Loading a Domain Configuration Scheme, on page 3-8.
- If a Scheme is already loaded, but is not the required Scheme, see Adding Domains to the current Domain Configuration and Replacing the current Domain Configuration, on page 3-10.

2. Select the required domain. If the domain is in the stand-by mode, **INACTIVE** is displayed in the **Domain Status** panel and the **Power On** button is accessible.



Important:

If INACTIVE is not displayed in the Domain Status panel and the Power On button is not accessible, check whether another user has already launched the power–up sequence on this domain. If the power–up sequence is not already in progress, see What To Do if an Incident Occurs, on page 3-69.

- 3. Click **Power On** to power up the domain and associated hardware components. The **Power On Confirmation** dialog opens.
- Select the View Power–On Logs checkbox if you want power–on logs to be automatically displayed during the power–on sequence and click Yes to confirm.

Domain hardware is powered up from the stand-by mode to the main mode and the Operating System is booted. As the power-on sequence progresses, power-on steps and domain state are displayed in the **Domain Status** panel, as shown in the following table.

Power On States			
POWERING ON			
POWERED ON – LOADING BIOS			
BIOS READY – STARTING EFI			
EFI STARTED – BOOTING OS			
RUNNING			

Table 9. Power–on states

Once the **Power On** sequence has been successfully completed, **RUNNING** is displayed in the **Domain Status** panel and the **Power Off**, **Reset** and **Force Power Off** buttons become accessible.

For a detailed view of the **Power On** sequence, click **Powering View** in the Toolbar. See *Viewing Domain Powering Sequences*, on page 3-29.

5. Repeat Steps 2 to 4 for each domain to be powered up.

I Note:

If an error message is displayed in the **Domain Status** panel, the **Power On** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Powering On Multiple Domains

To power up more than one domain:

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- If the domains are already loaded, they are available for domain management. Go to Step 2 below.
- If the domains are not already loaded, click **Synchronize Domains** in the toolbar to load all domains.

NovaScale 6xx0 Servers

- 1. Click Domain Manager to open the Control pane:
 - If the required domain configuration scheme is already loaded, the corresponding domain(s) are available for domain management. Go to Step 2.

- If a scheme has not been previously loaded, you are invited to select and load a scheme. See *Viewing a Domain Configuration Scheme*, on page 3-6 and *Loading a Domain Configuration Scheme*, on page 3-8.
- If a Scheme is already loaded, but is not the required Scheme, see Adding Domains to the current Domain Configuration and Replacing the current Domain Configuration, on page 3-10.
- 2. Click Multiple Power. The Multiple Power Domains On/Off dialog opens.

o forcibly power off all RUN Iomain Operating System o cancel all selected opera	bowered on. bowered off / foi tes can only be omains, click P omains, click P vNING domains ations, click Des	cibly power forcibly po ower On All ower Off All or domains select All.	red off. wered off. . A shutdow s in intermed	n request diate state:	is sent to each domain Operat s, click Force Power Off All. A :	ting System. shutdown request is NOT sent to eac	h
Deselect All	Power On Al	r B	Power Off /	All	Eorce Power Off All		
Central subsystem	Deselect	Power On	Power Off	Power Off	Domains	Domain State	
MYSERVER	e	0	C	C	💽 🦓 MyOperations-1	INACTIVE	4
	c	C	0	0	MyOperations-2	INACTIVE	
	e	0	0	0	MyOperations-3	INACTIVE	
	e	C	0	0	MyOperations-4	INACTIVE	
Execut	e			<u>C</u> ar	ncel	Help	

Deselect All	Cancels all selected operations.
Power On All	Powers on all INACTIVE domains.
Power Off All	Powers off all RUNNING domains.
Force Power Off All	Forcibly powers off all RUNNING or HUNG domains.
Deselect	Cancels the selected operation for this domain.
Power On	Powers on this domain if INACTIVE.
Power Off	Powers off this domain if RUNNING.
Force Power Off	Forcibly powers of this domain if RUNNING or HUNG.
Execute	Applies all selected operations.
Cancel	Cancels all selected operations.

Figure 50. Multiple power dialog – quadri–domain example

 Click Power On All → Execute or select the required domain Power On radio buttons and click Execute to simultaneously power on the selected INACTIVE domains and associated hardware components.

Domain hardware is powered up from the stand-by mode to the main mode and the Operating System is booted. As the power-on sequence progresses, power-on steps and domain state are displayed in the **Domain Status** panel, as shown in the following table.

Power On States				
POWERING ON				
POWERED ON – LOADING BIOS				
BIOS READY – STARTING EFI				

EFI STARTED – BOOTING OS

RUNNING

Table 10. Power-on states

Once the **Power On** sequence has been successfully completed, **RUNNING** is displayed in the **Domain Status** panel and the **Power Off**, **Reset** and **Force Power Off** buttons become accessible.

For a detailed view of the **Power On** sequence, click **Powering View** in the Toolbar. See *Viewing Domain Powering Sequences*, on page 3-29.

I Note:

If an error message is displayed in the **Domain Status** panel, the **Power On** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Powering Off a Domain

What You Can Do

During the domain power-off sequence, you can:

- View functional status
- View power logs
- View powering sequences
- View BIOS info
- View request logs
- · View domain configuration, resources and status

Server domains can either be powered off from the Operating System (RECOMMENDED) or from the PAM **Domain Manager**, according to Operating System power settings.

The PAM **Power Off** command is a shutdown request to the Operating System. If the Operating System is configured to accept a PAM power off request, it will save data, close open applications and shut down. Domain hardware will power down to the stand-by mode. The Operating System may also be configured to request Operator confirmation before accepting a PAM power off request. Refer to the applicable documentation delivered with the Operating System for further details.

- **I** Notes:
 - When more than one domain is loaded in the Control pane, domains can be powered off sequentially or simultaneously. See *Powering Off a Single Domain*, on page 3-18 and *Powering Off Multiple Domains*, on page 3-19.
 - Server domains may be powered up even if the server presents a minor fault. See *System Functional Status*, on page 4-4. However, you are advised to contact your Customer Service Engineer so that the fault can be repaired.

Powering Off a Single Domain

1. Click Domain Manager to open the Control pane.

2. Select the required domain. If the domain is in the powered–on mode, **RUNNING** is displayed in the **Domain Status** panel and the **Power OFF** button is accessible.



Important:

If RUNNING is not displayed in the Domain Status panel and the Power OFF button is not accessible, another user may have already launched the power–off sequence or may be working under EFI SHELL. If the power–off sequence is not already in progress and/or if EFI STARTED is not displayed in the Domain Status panel, see *What To Do if an Incident Occurs*, on page 3-69.

- 3. Click **Power Off** to power down the domain and associated hardware components. The **Power Off Confirmation** dialog opens.
- 4. Select the **View Power–Off Logs** checkbox if you want power–off logs to be automatically displayed during the power–off sequence and click **Yes** to confirm.

The Operating System saves data, closes open applications and shuts down. Domain hardware is powered down from the main mode to the stand-by mode. As the power-off sequence progresses, power-off steps and domain state are displayed in the **Domain Status** panel, as shown in the following table.

Power Off States		
POWERING DOWN		
INACTIVE		

Table 11. Power-off states

Once the **Power Off** sequence has been successfully completed, **INACTIVE** is displayed in the **Domain Status** panel and the **Power On** button becomes accessible.

For a detailed view of the **Power Off** sequence, click **Powering View** in the Toolbar. See *Viewing Domain Powering Sequences*, on page 3-29.

5. Repeat Steps 2 to 4 for each domain to be powered down.

I Note:

If an error message is displayed in the **Domain Status** panel, the **Power Off** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Powering Off Multiple Domains

- 1. Click Domain Manager to open the Control pane.
- 2. Click Multiple Power. The Multiple Power Domains On/Off dialog opens.

	nultaneously po owered on. owered off / for tes can only be omains, click Pr omains, click Pr INING domains	wer on / po cibly power forcibly po ower On All ower Off All or domains	red off. wered off. . A shutdow	n request	is sent to each domain Operat	ing System. shutdown request is NOT sent to each	X
Deselect All	Power On All		Power Off	All	Eorce Power Off All		
Central subsystem	Deselect	Power On	Power Off	Force Power Off	Domains	Domain State	
MYSERVER	c	C	C	C	MyOperations-1	INACTIVE	4
	۲	С	0	0	■ 🛆 MyOperations-2		
	e	0	0	0	MyOperations-3		
	e	0	¢	0	➡ ⚠ MyOperations-4	INACTIVE	
Execut	8			Car	се	Help	*

Deselect All	Cancels all selected operations.
Power On All	Powers on all INACTIVE domains.
Power Off All	Powers off all RUNNING domains.
Force Power Off All	Forcibly powers off all RUNNING or HUNG domains.
Deselect	Cancels the selected operation for this domain.
Power On	Powers on this domain if INACTIVE.
Power Off	Powers off this domain if RUNNING.
Force Power Off	Forcibly powers of this domain if RUNNING or HUNG.
Execute	Applies all selected operations.
Cancel	Cancels all selected operations.

Figure 51. Multiple power dialog - quadri-domain example

 Click Power Off All → Execute or select the required domain Power Off radio buttons and click Execute to simultaneously power off the selected RUNNING domains and associated hardware components.

The Operating System saves data, closes open applications and shuts down. Domain hardware is powered down from the main mode to the stand-by mode. As the power-off sequence progresses, power-off steps and domain state are displayed in the **Domain Status** panel, as shown in the following table.

	Power Off States
POWERING DOWN	
INACTIVE	

Table 12. Power–off states

Once the **Power Off** sequence has been successfully completed, **INACTIVE** is displayed in the **Domain Status** panel and the **Power On** button becomes accessible.

For a detailed view of the **Power Off** sequence, click **Powering View** in the Toolbar. See *Viewing Domain Powering Sequences*, on page 3-29.

I Note:

If an error message is displayed in the **Domain Status** panel, the **Power Off** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Forcing a Domain Power Off

What You Can Do

During the domain force power-off sequence, you can:

- View functional status
- View power logs
- View powering sequences
- View BIOS info
- View request logs
- View domain configuration, resources and status

The **Force Power Off** command powers down domain hardware to the standby mode independently of the Operating System. This command should only be used if the Operating System is not running or is not configured / not able to respond to a standard power off command.

INote:

A standard power off command is a shutdown request to the Operating System. Refer to the applicable documentation delivered with the Operating System for further details.

In the event of a critical fault, PAM software automatically forces a domain power off.

I Notes:

- When more than one domain is loaded in the Control pane, domains can be forcibly powered off sequentially or simultaneously. See *Forcibly Powering Off a Single Domain*, on page 3-22 and *Forcibly Powering off Multiple Domains*, on page 3-22.
- Server domains may be powered up even if the server presents a minor fault. See *System Functional Status*, on page 4-4. However, you are advised to contact your Customer Service Engineer so that the fault can be repaired.



Warning:

The Force Power Off command may result in domain data loss and file corruption. NEVER use the Force Power Off command if a RECOVERING BIOS error message is displayed. (The BIOS recovery program automatically re–flashes the BIOS when certain problems occur during initialization).

Forcibly Powering Off a Single Domain

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain. If **INACTIVE** is NOT displayed in the **Domain Status** panel, the **Force Power Off** button is accessible.
- 3. Click **Force Power Off** to override the Operating System and forcibly power down the domain and associated hardware components without closing running applications and saving data. The **Force Power Off Confirmation** dialog opens.
- 4. Select the **View Power–Off Logs** checkbox if you want power–off logs to be automatically displayed during the power–off sequence and click **Yes** to confirm.

Domain hardware is powered down from the main mode to the stand-by mode. As the force power-off sequence progresses, power-off steps and domain state are displayed in the **Domain Status** panel, as shown in the following table.

Force Power Off States					
POWERING DOWN					
INACTIVE					

Table 13.Force power-off states

Once the **Force Power Off** sequence has been successfully completed, **INACTIVE** is displayed in the **Domain Status** panel and the **Power On** button becomes accessible.

For a detailed view of the **Force Power Off** sequence, click **Powering View** in the Toolbar. See *Viewing Domain Powering Sequences*, on page 3-29.

5. Repeat Steps 2 to 4 for each domain to be forcibly powered down.

Note:

If an error message is displayed in the **Domain Status** panel, the **Power Off** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Forcibly Powering Off Multiple Domains

- 1. Click **Domain Manager** to open the Control pane.
- 2. Click Multiple Power. The Multiple Power Domains On/Off dialog opens.

Multiple Power Domains On This dialog allows you to s			wer off sev	eral select	ed domains		L
INACTIVE domains can be RUNNING domains can be Domains in intermediate st To power on all INACTIVE To power off all RUNNING	powered on. powered off / fo ates can only be domains, click P domains, click P INNING domains	rcibly power forcibly po ower On All ower Off All or domains	ed off. wered off. . A shutdow	n request	is sent to each domain Opera	ting System. shutdown request is NOT sent to each	
Deselect All	eselect All <u>P</u> ower On All		Power Off All		Eorce Power Off All		
Central subsystem	Deselect	Power On	Power Off	Force Power Off	Domains	Domain State	
MYSERVER	c	0	0	6	🕞 🦓 MyOperations-1	INACTIVE	2
	œ	С	0	0	MyOperations-2	INACTIVE	
	e	0	C	0	MyOperations-3	INACTIVE	
	۹	C	e	0	MyOperations-4	INACTIVE	
Exec	ite			<u>_C</u> ar		Help	

Deselect All	Cancels all selected operations.
Power On All	Powers on all INACTIVE domains.
Power Off All	Powers off all RUNNING domains.
Force Power Off All	Forcibly powers off all RUNNING or HUNG domains.
Deselect	Cancels the selected operation for this domain.
Power On	Powers on this domain if INACTIVE.
Power Off	Powers off this domain if RUNNING.
Force Power Off	Forcibly powers of this domain if RUNNING or HUNG.
Execute	Applies all selected operations.
Cancel	Cancels all selected operations.

Figure 52. Multiple power dialog – quadri–domain example

 Click Force Power Off All→ Execute or select the required domain Force Power Off radio buttons and click Execute to to override the Operating System and forcibly power down the selected domains and associated hardware components without closing running applications and saving data.

	Power Off States	
POWERING DOWN		
INACTIVE		

Table 14. Power-off states

Once the **Power Off** sequence has been successfully completed, **INACTIVE** is displayed in the **Domain Status** panel and the **Power On** button becomes accessible.

For a detailed view of the **Power Off** sequence, click **Powering View** in the Toolbar. See *Viewing Domain Powering Sequences*, on page 3-29.

I Note:

If an error message is displayed in the **Domain Status** panel, the **Power Off** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Manually Resetting a Domain

What You Can Do

During the domain reset sequence, you can:

- View functional status
- View power logs
- View powering sequences
- View BIOS info
- View request logs
- · View domain configuration, resources and status

The **Reset** command is used to restart the current Operating System without powering off/on the domain.



Warning:

The Reset command should only be used if the Operating System is not running or is not able to respond to a standard Power Off command. The Reset command may result in domain data loss and file corruption. The Reset command does not power down domain hardware (warm reboot).

To manually reset a domain:

- 1. Click **Domain Manager** to open the Control pane.
- 2. Select the required domain. If **INACTIVE** is NOT displayed in the **Domain Status** panel, the **Reset** button is accessible.
- 3. Click **Reset** to override the Operating System and forcibly perform a warm reboot of the domain BIOS, EFI and Operating System without closing running applications and saving data. The **Reset Confirmation** dialog opens.
- 4. Click Yes to confirm the Reset command.

As the reset sequence progresses, reset steps and domain state are displayed in the **Domain Status** panel, as shown in the following table.

Reset States	
POWERED ON – LOADING BIOS	
BIOS READY – STARTING EFI	
EFI STARTED – BOOTING OS	
RUNNING	

Table 15. Reset states

Once the **Reset** sequence has been successfully completed, **RUNNING** is displayed in the **Domain Status** panel and the **Power Off**, **Reset** and **Force Power Off** buttons become accessible.

For a detailed view of the **Reset** sequence, click **Powering View** in the Toolbar. See *Viewing Domain Powering Sequences*, on page 3-29.

5. Repeat Steps 2 to 4 for each domain to be reset.

I Note:

If an error message is displayed in the **Domain Status** panel, the **Power On** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Viewing a Domain Fault List

The **Domain Fault List** page allows you to view messages about the faults encountered since the beginning of the last power–on sequence on the selected domain. The fault list is automatically cleared when a new domain power–on sequence is started.

Dote:

For details about PAM messages, see *Viewing and Managing PAM Messages, History Files and Archives*, on page 4-28.

To view the domain fault list:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain and click **Fault List** in the Command bar to open the **Fault List** dialog.

	2B2B2256 2B2B2256		Target		Faults List - Fault(s	3)	
	28282256 28282256 28282256	07/06/05 - 16:57:10					
	2B2B2256 2B2B2256		/DOMAINGROUP_PF3-1/DOMAIN_CEL				String
	28282256	07/06/05 - 16:10:18		_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
3			/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
		07/06/05 - 15:43:25	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
	2B2B2256	07/06/05 - 15:35:26	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
• •	28282256	07/06/05 - 15:07:02	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
3	28282256	07/06/05 - 15:00:56	/DOMAINGROUP_PF3-1/DOMAIN_CEL	LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
3	28282256	07/06/05 - 14:55:47	/DOMAINGROUP_PF3-1/DOMAIN_CEL	LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
			/DOMAINGROUP_PF3-1/DOMAIN_CEL				
)	28282256	07/06/05 - 14:42:39	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
) :	2B2B2256	07/06/05 - 09:51:09	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
)	28282256	07/06/05 - 09:46:14	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	ulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
)	28282256	07/06/05 - 09:02:07	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
	28282256	07/06/05 - 08:57:11	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
							aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
) :	2B2B2256	07/06/05 - 08:47:26	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
)	2B2B2256	07/06/05 - 08:42:31	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
)	2B2B2256	07/06/05 - 08:37:39	/DOMAINGROUP_PF3-1/DOMAIN_CEL	_LS_01	FRU/CELLSBLOCK_	PF3-1/MODULE_0/QBB_1 fa	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
-					1.5		aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
S-1-			the set and a second the set of the set of the second set of the second second set of a second set			a second s	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
							aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
			and the set of the second s		and the second sec	a specie service a service service service service as a service se	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
							aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
S			and and an end of the second		and second or a state of the second second second	and the second	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
×							aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0
C			and the party party was present to the test of the test shares of the sector of the sector of the sector of	a second second	and the second	and the second	aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0 aulty in domain /DOMAINGROUP_PF3-1/DOMAIN_CELLS_0

Button	Use			
Clear fault list	To manually clear the fault list.			
Help	To access context sensitive help.			
Search – String – Contained in attribute – Case sensitive – Use previous results	 To search for specific messages, according to: Alphanumeric identifier (ID), e.g. 2B2B2214 above. Message Source, Target, String, Data attributes. Upper case / lower case letters. Multiple search option used to search again from the results obtained from the previous search(es). 			
+	To view the message and access context sensitive help.			
Help on message	To view the related help message.			
Column Header	Use			
SV	To sort messages according to severity level.			
ID	To sort messages according to Message IDentifier.			
Local Time	To sort messages according to message local time and date.			
Target	To sort messages according to the component referred to in the message.			
String	To sort messages according to message text string.			

Figure 53. Domain fault list dialog - example

Performing a Domain Memory Dump

The **Dump** command is used when the Operating System hangs and allows technicians to diagnose software problems by saving domain memory.



Warning:

The Dump command should only be used if the Operating System is not able to respond to a standard Power OFF command. The Dump command may result in domain data loss and file corruption.

The Dump command does not power down domain hardware (automatic warm reboot).

To perform a domain memory dump:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain. If **RUNNING** is displayed in the **Domain Status** panel, the **Dump** button is accessible.
- 3. Click **Dump** to override the Operating System and forcibly clear domain core memory which will be copied to the PAP unit hard disk for analysis. The **Dump Confirmation** dialog opens.
- 4. Click Yes to confirm the Dump command.

The **Dump** sequence results in a warm reboot of the domain BIOS, EFI and Operating System (without closing running applications and saving data).

As the dump sequence progresses, dump steps and domain state are displayed in the **Domain Status** panel, as shown in the following table.

	Dump States
POWERED ON – LOADING BIOS	
BIOS READY – STARTING EFI	
EFI STARTED – BOOTING OS	
RUNNING	

Table 16. Dump states

Once the **Dump** sequence has been successfully completed, **RUNNING** is displayed in the **Domain Status** panel and the **Power Off**, **Reset** and **Force Power Off** buttons become accessible.

5. Repeat Steps 2 to 4 for each domain on which you want to perform a memory dump.

Note:

If an error message is displayed in the **Domain Status** panel, the **Dump** sequence has failed. See *What To Do if an Incident Occurs*, on page 3-69.

Viewing Domain Functional Status

The Domain Functional Status indicator in the Domain Manager Control pane shows the functional status of the last action performed on each domain, e.g. if the last Power ON/OFF sequence was successful, the indicator is green, and also reflects the status of domain hardware components.

As Customer Administrator, you can toggle the **PAM Tree** to display the synthetic functional status (round, colored indicator next to the **Domain Manager** node) of all the domains loaded in the **Domain Manager** Control pane. For example:

- If the last **Power ON/OFF** sequence was successful on all domains and the status of all domain hardware components is normal, the indicator is green
- If the last **Power ON/OFF** sequence failed on at least one domain and/or the status of at least one domain hardware component is fatal, the indicator is red.

Indicator	Status	Explanation
Green	NORMAL	Control Pane The last command on this domain was successful. or The domain fault list has been cleared. Note: Domain functional status is reset to NORMAL when a new domain power–on sequence is started. PAM Tree The last command on all domains was successful. or All domain fault lists have been cleared.
Yellow	WARNING	Control Pane An automatic Recovery command has been launched on this domain. or A WARNING status for a domain hardware component has been detected by the BIOS and a warning error has been added to the domain fault list. or The domain fault list was not empty when PAM was started. PAM Tree An automatic Recovery command has been launched on at least one domain. or A WARNING status for at least one domain hardware component has been detected by the BIOS and a warning error has been added to the domain fault list. or At least one domain fault list was not empty when PAM was started. Note: The BIOS recovery program automatically re–flashes the BIOS when certain problems occur during initialization
Orange	CRITICAL	Control Pane The last command on this domain was not successful and a critical error has been added to the domain fault list. PAM Tree The last command on at least one domain was not successful.
Red	FATAL	Control Pane The last command on this domain has failed and a fatal error has been added to the domain fault list. PAM Tree The last command on at least one domain has failed.

Table 17. Domain functional status indicators

Viewing Domain Power Logs

Power logs are recorded during domain power ON/OFF sequences. This information is particularly useful for troubleshooting. See *What To Do if an Incident Occurs*, on page 3-69.

During a Power ON/OFF Sequence

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain and launch the domain power ON/OFF sequence, as required.
- 3. Select the **View Power Logs** checkbox in the **Power Confirmation** dialog to automatically display power logs during the powering sequence.

🙆 Power Logs Dialogue de page Web	×
Domain : MyOperations-2	Central Subsystem : MYSERVER
Power On trace :	
3/9/2004 15:57:42 : Step 24 substep 0 Control Thermal Zones OK	
3/9/2004 15:57:42 : Step 25 substep 0 DeassertDomainReset OK	
3/9/2004 15:57:43 : Step 26 substep 0 Setting CVDR of MODULE_0 3/9/2004 15:57:43 : Step 27 substep 0 SecondDomainReset OK	/QBB_3 UK
3/9/2004 15:57:43 : Step 28 substep 0 SetSPSRegisters of MODULI	E 0/MPCELL 1 OK
3/9/2004 15:57:43 : Step 29 substep 0 Setting SPADS of MODULE_	
3/9/2004 15:57:43 : Step 30 substep 0 Setting SPADS of MODULE_	
3/9/2004 15:57:43 : Step 99 substep 0 Final step of POWERON OK Power Off trace :	
I	*
Close	Refresh

Figure 54. Power logs dialog

Outside a Power ON/OFF Sequence

NovaScale 5xx0 Servers

• Click the **Power Logs** button in the Domain Manager Command bar.

NovaScale 6xx0 Servers

• Click **Powering View** \rightarrow **Power Logs** in the Domain Manager Toolbar.

Image: Note:

Existing power logs are erased when a new power ON sequence is launched.

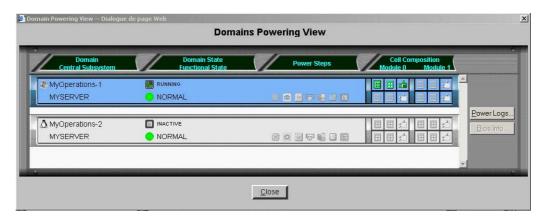
Viewing Domain Powering Sequences

NovaScale 5xx0 Servers

Domain powering sequence steps and states can be viewed from the **Domain Status** panel.

NovaScale 6xx0 Servers

A detailed view of powering sequences can be displayed by clicking **Powering View** in the Domain Manager Toolbar after a power request.



Status Panel Item	Explanation			
Domain	Selected domain identity.			
Central Subsystem	Name of the Central Subsystem containing the domain.			
Domain State	Current power sequence step.			
Functional Status	Functional status of the last action performed on the domain. See Viewing Domain Functional Status, on page 3-27.			
Power Steps	Dynamic, graphic representation of power sequence steps.			
Cell Composition	Graphic representation of the core hardware elements in each cell (hardware partition): QBB(s), IOB(s) – Master / Slave. See <i>Configuring Domains</i> , on page 5-28.			

Figure 55. Powering view dialog

I Note:

An Infotip can be obtained by hovering the mouse over the required element.

Viewing Domain BIOS Info

BIOS information is particularly useful for troubleshooting. See *What To Do if an Incident Occurs*, on page 3-69.

To view BIOS information:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click:

NovaScale 5xx0 Servers

– View \rightarrow BIOS Info in the Command bar.

NovaScale 6xx0 Servers

– Powering View \rightarrow BIOS Info in the Toolbar.

The **BIOS Info** dialog opens, displaying the following information:

- BIOS version used by the domain,
- BIOS boot post codes. See BIOS POST Codes, on page 0.
- 4. Click **Refresh** to update BIOS information.

_	BIOS Information Dial Domain : MYOPERATIO				Central Subsystem : PROTO1
	BIOS version: B613.				
	Component	Post-Code		Description	1
	MODULE_0/QBB_0 MODULE_0/QBB_1 MODULE_0/QBB_2 MODULE_0/QBB_3	87800000 87DD1111 87DD1111 87DD1111	SAL to EFI handoff Wait for interrupt wakeup Wait for interrupt wakeup Wait for interrupt wakeup		
	Domain Manager				
		<u>C</u> lose		R	efresh

Figure 56. BIOS Info dialog

Viewing Domain Request Logs



Important:

NovaScale 6xx0 Servers ONLY. Please contact your Bull Sales Representative for sales information.

The **Request Logs** dialog gives direct access to a trace of major domain operations (requests) and indicates their initiators (requestors).

To view Request logs:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click Request Logs in the Command bar.

The Request Logs dialog displays the following information:

- Power On requests and requestors,
- Power Off requests and requestors,
- Reset requests and requestors.

🖉 Request Logs Dialogue de page Web	×
Domain : MYOPERATIONS-1	Central Subsystem : PROTO9
3/11/2004 15:53:59 : Domain Power On requested by logged operator 3/11/2004 15:58:49 : Domain Hard Reset requested by Bios 3/11/2004 16:18:50 : Domain Hard Reset requested by Bios	Mw
	~
Close	

Figure 57. Request Logs dialog

Note:

Existing request logs are erased when a new power ON sequence is launched.

Viewing Domain Configuration, Resources and Status



Important:

NovaScale 6xx0 Servers ONLY. Please contact your Bull Sales Representative for sales information.

Notes:

- Certain features described below are only available if you are connected to a Storage Area Network (SAN).
 - Please contact your Bull Sales Representative for sales information.
- In the screen shots, tables, and examples in this guide:
 - MyOperationsScheme-xx is referred to as MyOperationsScheme
 - MyOperations-xx-1 is referred to as MyOperations-1
 - MyOperations-xx-2 is referred to as MyOperations-2
 - MyOperations-xx-3 is referred to as MyOperations-3
 - MyOperations-xx-4 is referred to as MyOperations-4

Information about the resources allocated to each domain is permanently accessible from the **Domain Manager** Control pane:

- Graphic representation of domain configuration.
- Non-graphic summary of the hardware resources allocated to a domain.
- Graphic summary of the hardware resources allocated to a domain and their status.

Viewing Domain Configuration

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click View in the Command bar to open the View Domain dialog.

🖉 View Domain Dialogue de page Web 🔀							
	View	Domain					
Central Subsystem	📕 MYSI	ERVER					
Domain Identity	🎥 MyOperations-1						
EFI LUN	👦 MYSI	ERVER_OLU	JO OL				
Data LUNs	<< No Data LUNs >>						
CPU & Memory	🔅 8 CPU	J	🦚 1024 l	ив			
Composition	CELL 2			CELL 3			
Module 1				-			
Module 0	CELL_1		🖽 🖽 🛍	CELL_0			
		1		-			
	<u>B</u> ios Ir	nto .	<u>V</u> iew Reso	urces			
r	1						
<u>C</u> lose			<u>M</u> odify				

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers Figure 58. View Domain dialog

View Domain Dialog Items

Domain Item	Explanation
Central Subsystem	Name of the Central Subsystem containing the domain.
Domain Identity	Logical name and profile given to the domain.
EFI LUN	Boot LUN device location:
	NovaScale 6080/6160 Server
	0LU0 = LUN device connected to Module0, IOB0 0LU1 = LUN device connected to Module0, IOB1
	NovaScale 6320 Server
	0LU0 = LUN device connected to Module0, IOB0 0LU1 = LUN device connected to Module0, IOB1 0LU2 = LUN device connected to Module1, IOB0 0LU3 = LUN device connected to Module1, IOB1
Data LUNs	The Data LUNs allocated to this domain. Reserved for systems connected to a SAN.
CPU	Number of processors used by the domain.
Memory	Size of memory used by the domain.
Composition	Graphic representation of the main hardware elements used by the domain. See Note below.
Module	Module housing the cell(s) used by the domain. Module0 = Cell_0 and Cell_1 Module1 = Cell_2 and Cell_3*
Cell	Cell(s) or hardware partition(s) used by the domain.
	NovaScale 6080/6160 Server Cell_0 = Mod0_QBB0, Mod0_QBB1, Mod0_IOB0 Cell_1 = Mod0_QBB2, Mod0_QBB3, Mod0_IOB1 NovaScale 6320 Server Cell_0 = Mod0_QBB0, Mod0_QBB1, Mod0_IOB0 Cell_1 = Mod0_QBB2, Mod0_QBB3, Mod0_IOB1 Cell_2 = Mod1_QBB0, Mod1_QBB1, Mod1_IOB0 Cell_3 = Mod1_QBB2, Mod1_QBB3, Mod1_IOB1 See Configuring Domains, on page 5-28.

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 59. View Domain dialog

Dote:

When the domain is **RUNNING**, an Infotip identifying the Master QBB / IOB can be obtained by hovering the mouse over the QBB / IOB icons.

Master IOB = IOB to which the domain boot LUN device is connected. Master QBB = QBB required to start the domain.

Viewing Domain Hardware Resources

- 1. Click **Domain Manager** to open the Control pane.
- 2. Select the required domain and click **View Resources** in the **View Domain** dialog to open the **Domain Hardware Resources** dialog.

Domain Hardware Resources	Dialogue de page Web	Cent	x tral Subsystem : MYSERVER
	Number of QBB	2	
	Number of CPU	8	
	Memory Size (in MB)	2048	
	Number of IOB	1	
<u></u>	DSE	<u>M</u> ore	llnfo

Figure 60. Domain Hardware Resources dialog

Viewing Domain Details and Status

- 1. Click **Domain Manager** to open the Control pane.
- 2. Click View \rightarrow View Resources \rightarrow More Info... in the Command bar to open the Domain Hardware Details dialog.

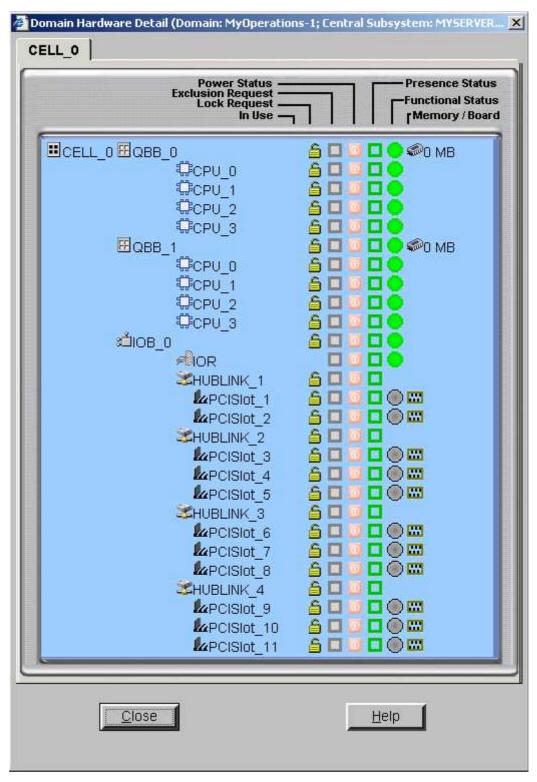


Figure 61. Domain Hardware Details dialog

Domain Hardware Details icons are explained in the following table.

Item	lcon	Meaning
	🞇 Green	Main power is ON.
	🞇 Red	Main power is OFF. Stand-by power is ON.
	0 Pink	Main power is OFF. Stand-by power is OFF.
Power Status	Blinking pink	Stand–by power is Faulty.
	Blinking red	Main power is Faulty. Stand–by power may be ON, OFF or Faulty.
	o Gray	Main power status is Unknown.
Exclusion Request	Gray	To be logically included at the next domain power ON.
Exclusion nequest	Xellow/ red	To be logically excluded at the next domain power ON.
Look Poquoot	- Line	To be functionally included in the domain (unlocked).
Lock Request	a	To be functionally excluded from the domain (locked).
Used	Green	Used by the domain.
0300	Gray	Not used by the domain.
	Green	Physically present and accessible.
Presence Status	D Red	Was present in a previous configuration but has disappeared.
	Purple	Cannot be computed (detection circuit error).
	ereen	No problem detected, operating correctly.
	- Yellow	Minor problem reported, still operational.
Functional Status	e Orange	Serious problem reported, no longer capable of operating correctly. PAM may generate an OS shutdown request.
	ed Red	Major problem reported. PAM may automatically shut down the OS. System integrity is jeopardized.
	Purple	Cannot be computed (detection circuit error).
Memory	\$	Memory available per QBB.
Board		PCI slot occupied.
	3	PCI slot empty.

Table 18.Domain hardware details icons

I Note:

When the domain is **INACTIVE**, the **Domain Hardware Details** dialog indicates the resources that PAM will try to initialize for the domain during the next **Power ON** sequence. When the domain is **RUNNING**, the **Domain Hardware Details** dialog indicates the resources that PAM successfully initialized for the domain during the last **Power ON** or **Reset** sequence.

For more information about domain hardware, see:

- Presence Status Indicators, on page 4-6
- Functional Status Indicators, on page 4-7
- Viewing Server Hardware Status, on page 4-13
- Configuring Domains, on page 3-27
- Excluding/Including Hardware Elements, on page 4-25
- Limiting Access to Hardware Resources, on page 5-62

Modifying Domain Configuration



Important:

Reserved for partitioned servers and extended systems. Certain features described below are only available if you are connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

What You Can Do

- Swap a Domain EFI Boot LUN
- Add a Data LUN
- Remove a Data LUN
- Link a LUN to a Fibre Channel Host
- Add Cells to a Domain
- Remove Cells from a Domain
- Lock Hardware Components
- Delete a Domain

The Bull NovaScale 6000 Series server is designed around a flexible, cell–based, midplane architecture for enhanced performance, scalability and availability and is designed to operate as:

- two SMP systems, one using the hardware resources in Cell_0, the other using the hardware resources in Cell_1 (default configuration), or
- a single SMP system, using the hardware resources in both Cell_0 and Cell_1, or
- a single SMP system, using the hardware resources in Cell_0 only, or
- a single SMP system, using the hardware resources in Cell_1 only.
- four SMP systems, each using the hardware resources in one cell (default configuration), or
- a single SMP system, using the hardware resources in all cells, or
- a single SMP system, using the hardware resources in a selection of cells.

As Customer Administrator, you are advised to configure schemes for domain management via the **PAM Domain Configuration Scheme** wizard. For further details about domain configuration options, see *Configuring Domains*, on page 5-28.

During operation, you may want to re-define server domains to meet variations in workload, for example. As Customer Administrator or Operator you can modify the configuration of any **INACTIVE** domain loaded in the **Domain Manager** Control pane, at any time, provided that the required resources are available (IO boxes and QBBs) and that they are supported by the domain Operating System.

Each CSS Module is divided into two Cells or hardware partitions, as shown in the following table:

NovaScale 6080/6160 Server

Hardware Cell	Cell_0	Cell_1
EFI LUN	< <i>MyServer</i> >_0LU0	< <i>MyServer</i> >_0LU1
IOB	Mod0_IOB0	Mod0_IOB1
QBBs	Mod0_QBB0, Mod0_QBB1*	Mod0_QBB2*, Mod0_QBB3

* QBB1 and QBB2 only equip the NovaScale 6160 Server

NovaScale 6320 Server

Hardware Cell	Cell_0	Cell_1
EFI LUN	< <i>MyServer</i> >_0LU0	< <i>MyServer</i> >_0LU1
IOB	Mod0_IOB0	Mod0_IOB1
QBBs	Mod0_QBB0, Mod0_QBB1	Mod0_QBB2, Mod0_QBB3
Hardware Cell	Cell_2	Cell_3
EFI LUN	< <i>MyServer</i> >_0LU2	< <i>MyServer</i> >_0LU3
IOB	Mod1_IOB0	Mod1_IOB1
QBBs	Mod1_QBB0, Mod1_QBB1	Mod1_QBB2, Mod1_QBB3

 Table 19.
 Bull NovaScale 6000 Series server cell configuration

NovaScale 6080/6160 Server

NovaScale 6320 Server

IF Notes:

- **xx** in the default configuration scheme and domain names represents the Central Subsystem HW identifier (from 00 to 16). For further details, refer to *PMB LEDs and Code Wheels*, on page 4-46.
- In the screen shots, tables, and examples in this guide:
 - MyOperationsScheme-xx is referred to as MyOperationsScheme
 - MyOperations-xx-1 is referred to as MyOperations-1
 - MyOperations-xx-2 is referred to as MyOperations-2
 - MyOperations-xx-3 is referred to as MyOperations-3
 - MyOperations-xx-4 is referred to as MyOperations-4
- In the screen shots in this guide, an instance of Microsoft Windows is pre-installed on **MyOperations-xx-1** and **MyOperations-xx-3** and an instance of Linux is pre-installed on **MyOperations-xx-2** and **MyOperations-xx-4**.

Operating System type is indicated by the Microsoft Windows \mathbb{R} or Linux Δ logo in the **Domain Identities** box.

Swapping a Domain EFI Boot LUN



Important:

Certain features described below are only available if you are connected to a Storage Area Network (SAN).

Please contact your Bull Sales Representative for sales information.

Isotes:

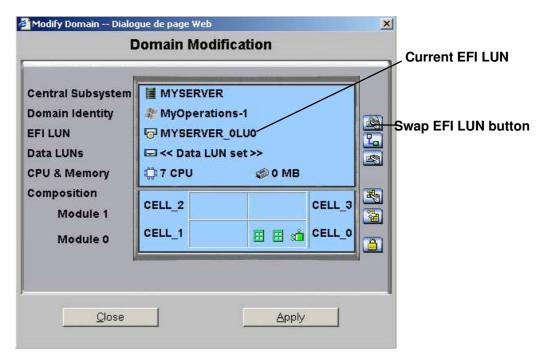
- The domain must be **INACTIVE** before configuration changes can be made.
- When you change the EFI boot LUN, you will also change the Operating System instance.
- Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.

To change the domain EFI boot LUN:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click Modify in the Command bar to open the Modify Domain dialog.

I Note:

The **Modify Domain** dialog can also be accessed from the **View Domain** dialog.



* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers Figure 62. Modify Domain – Swap EFI LUN 4. Click the Swap EFI LUN button. The Select LUN dialog opens.

ach Domain must have an EFI B om the list and click OK to apply		n an Opera	ating Syste	em has bei	en installed. Select the required EFI Bo	oot LU
vailable EFI LUNs :						
Name	Туре	Capacity	In Use in Domain	Used in Scheme	Description	
DA1300				·		
🕵 LUN10	RAID5	10.0GB	No	No		
LUN6	RAID1	15.0GB	No	No		

Figure 63. Select EFI LUN dialog

5. Select the required LUN and click OK.

New domain configuration is displayed in the **Modify Domain** dialog.

					New EFI LU
Central Subsystem	MYSERVER				
Domain Identity	🎥 MyOperatio	ns-1	_		
EFI LUN	🐨 LUN10				
Data LUNs	🖃 << Data LUN	set >>			
CPU & Memory	💭 7 CPU	🌮 0 MB			
Composition	CELL 2		CELL 3	3	
Module 1			CELL_U		
Module 0	CELL_1	🗄 🗄 🛍	CELL_0	a	
			-		

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 64. Modify Domain – New EFI Lun

- 6. Click **Apply**. Changes will be applied at the next domain power on.
- 7. If the LUN is on the SAN, it must be linked to the corresponding Fibre Channel Host. See *Linking a LUN to a Fibre Channel Host*, on page 0.

Adding a Data LUN



Important:

Reserved for systems connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

Notes:

- The domain must be **INACTIVE** before configuration changes can be made.
- Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.

To add a data LUN:

- 1. Click **Domain Manager** to open the Control pane.
- 2. Select the required domain.
- 3. Click Modify in the Command bar to open the Modify Domain dialog.

I Note:

The **Modify Domain** dialog can also be accessed from the **View Domain** dialog.

	Iomain Modification		
Central Subsystem Domain Identity EFI LUN Data LUNs CPU & Memory Composition Module 1 Module 0	■ MYSERVER > MyOperations-1 > MYSERVER_OLUO □ Ata LUN set >> 1 7 CPU > 0 MB CELL_2		-Add Data LUN butto
Close		-	

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers Figure 65. Modify Domain – Add Data LUN

4. Click the Add Data LUN button. The Select Data LUN dialog opens.



If the message **LUNs used in the domain are not on the SAN** is displayed, your domain has not been configured to use LUNs on the SAN. See *Configuring Domains*, on page 5-28.

for data s Details I nd click th LUN and and click		utton.
	r r	
Loaded	Allocated	Description
		10
No	Yes	
No	No	
No	No	
No	No	
Yes	Yes	
	Remove	Link Details
Loaded	Remove	Link Details Description
		<u> </u>
		<u> </u>
Loaded	Allocated	<u> </u>
	No No	No No No No No No

Figure 66. Select Data LUN dialog - Data luns available list

5. Select the LUN you want to add to the current domain configuration in the **Data LUNs available** list and click **Details** to view LUN parameters, if required.

🖉 Edit LUN paramete	ers Dialogue de pag	je Web					×
Name: Description:	LUN9						_
							•
		0001 ready	Тур	ie: RAID5	Size:	10.0GB	
Subsystem Name: Serial Number:	FDA1300	375		Subsystem Model:	FDA		
F EFI LUN Present	Loaded		□ Allo	cated		NVRA	M
		[<u>C</u> anc	el			

Name	Name given to the LUN when created.
Description	Brief description of the LUN.
LUN Number	Number allocated to the LUN when created.
LUN State	If the LUN is ready for use, READY is displayed.
Туре	LUN configuration mode.
Size	LUN size.
Subsystem Name	Name of the subsystem containing the LUN.
Subsystem Model	Type of subystem containing the LUN.
Serial Number	Serial number of the subsystem containing the LUN.
EFI LUN	If this box is checked, the LUN is an EFI boot LUN. If this box is not checked, the LUN is a data LUN.
Present	If this box is checked, the LUN is detected. If this box is checked, the LUN is not detected.
Loaded	If this box is checked, the LUN is loaded in the Domain Manager Control pane. If this box is not checked, the LUN is not loaded in the Domain Manager Control pane.
Allocated	If this box is checked, the LUN is already allocated to a scheme. If this box is not checked, the LUN is not allocated to a scheme.

Figure 67. View LUN parameters dialog

6. Click Add. The selected data LUN is moved to the Data LUNs selected list.

Select Data LUNs Dialogue de page					
Central Subsystem : MYSERVER					Identity : MyOperations
ach Domain must have an EFI Bo	not LUN on which	h an Oper:	ating Syst	em has been ir	nstalled
ptionally, each Domain may have	e one or more D	ata LUNs f	or data s	torage.	
o view Data LUN details, select th o allocate a Data LUN to a Doma					
o link a Data LUN on the SAN to a					outton
o remove a Data LUN from a Dor					
ata luns available:					Details
Name	Туре	Capacity	Loaded	Allocated	Description
DA1300					
EUN12	RAID5	10.0GB	No	Yes	
LUN13	RAID5	1.0GB	No	No	Ū.
🛃 LUN14	RAID5	33.2GB	No	No	
🛃 LUN14	RAID5 RAID1	33.20B	No	N0 N0	
	RAID1	1 0.010.00	No	1.155	Link Details
ELUN14 ELUN7 ata luns selected:	RAID1	Add	No	No Remove	
ata luns selected: Name	RAID1	15.0GB	No	No	Link Details Description
ata luns selected: Name	RAID1	Add Capacity	Loaded	No Remove	
LUN14 LUN7 ata luns selected: Name DA1300	RAID1	Add Capacity	No Loaded Yes	No Remove	
LUN14 LUN7 Name DA1300 LUN11 LUN15	RAID1	15.06B Add Capacity 10.06B 33.26B	No Loaded Yes Yes	No Remove	
ata luns selected: Name DA1300 LUN11 LUN15 LUN15 LUN8	RAID1	Add Capacity 10.06B 33.26B 15.06B	No Loaded Yes Yes No	No Remove	
LUN14 LUN7 Pata luns selected:	RAID1	Add Capacity 10.00B 33.20B 15.00B	No Loaded Yes Yes	No Remove	
LUN14 LUN7 LUN7 Name DA1300 LUN11 LUN15 LUN15 LUN8	RAID1	Add Capacity 10.06B 33.26B 15.06B	No Loaded Yes Yes No	No Remove	
LUN14 LUN7 LUN7 DA1300 LUN11 LUN15 LUN8	RAID1	Add Capacity 10.06B 33.26B 15.06B	No Loaded Yes Yes No	No Remove	
LUN14 LUN7 LUN7 DA1300 LUN11 LUN15 LUN8	RAID1	Add Capacity 10.06B 33.26B 15.06B	No Loaded Yes Yes No	No Remove	
LUN14 LUN7 LUN7 DA1300 LUN11 LUN15 LUN8	RAID1	Add Capacity 10.06B 33.26B 15.06B	No Loaded Yes Yes No	No Remove	

Figure 68. Select Data LUN dialog - Data luns selected list

I Note:

If the selected data LUN is loaded in the current domain configuration or allocated to another domain, you will be requested to confirm that you want to add this LUN to the domain. Click **OK** to confirm or **Cancel** to return to the **Select Data LUN** dialog.

7. If the LUN is on the SAN, it must be linked to the corresponding Fibre Channel Host. Click Link. The Link LUNs to HBA dialog opens.

🚰 Link Luns to HBA Dialogue de page Web						
Central Subsystem : MYSERVER Identity : MyOperations-1						
When a LUN is connected to the SAN (Storage Area Network), it must be linked to at least one Fibre Channel Host plugged into one of the Domain's PCI slots.						
To establish the Primary Link between a	LUN and a Fibre Chann	el host, select the LUN from the list and (click the Set Primary Link button.			
For enhanced redundancy, each LUN ca Fibre Channel host, select the LUN from						
		Set Primary Link	Set Secondary Link			
LUN Name	Redundant	Primary Link	Secondary Link			
LUN9		MODULE_0/IOB_0/PCISLOT_1 789F-7894-ABCD-7889				
	ок	Cancel				



8. Select the Redundant checkbox if you want to define two links to the LUN.

I Note:

If you select the **Redundant** mode, you will be informed that dedicated software is required to enable this mode and you will be requested to confirm your choice.

9. Click **Set Primary Link** to define the main access path to the SAN. The **Select HBA** dialog opens, allowing you to select the domain PCI slot you want to use to access the LUN.

Select an HBA Dialogue de page Central Subsystem : MYSERVE Identity : MyOperati LUN : LUN9	R ions-1			2
Select the required PCI Slot to e the Fibre Channel Host.	estabilish the primary link betwe	en LUN LU	IN9 and	
PCI Slots	WWN	Linked		
E CELL_0: MODULE_0/OB_0			_	
CISLOT_1	789F-7894-ABCD-7889	Yes		
		No		
	7878-9898-6666-8785	No	_	
		No		
		No		
PCISLOT_9		No		
PCISLOT_10		No		
PCISLOT_11		No	-	
OK	Cancel			

Figure 70. Select an HBA dialog

- 10.Select the PCI slot containing the HBA to be used as the primary link to the SAN and click **OK**. The primary link is now set.
- 11. Where applicable, click **Set Secondary Link** to define the backup access path to the SAN.
- 12. Select the PCI slot containing the HBA to be used as the secondary link to the SAN and click **OK**. The secondary link is now set.
- 13. Click $OK \rightarrow Apply$. Changes will be applied at the next domain power on.

I Note:

If you do not define the data LUN link, a message will appear requesting you to link the LUN to a fibre channel host before saving changes. See *Linking a LUN to a Fibre Channel Host*, on page 0 for details.

Removing a Data LUN



Important:

Reserved for systems connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

Notes:

- The domain must be **INACTIVE** before configuration changes can be made.
- Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.

To remove a data LUN:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click Modify in the Command bar to open the Modify Domain dialog.

I Note:

The Modify Domain dialog can also be accessed from the View Domain dialog.

	omain Modification	
Central Subsystem Domain Identity EFI LUN Data LUNS CPU & Memory Composition Module 1 Module 0	MYSERVER MyOperations-1 MYSERVER_OLUO CELL_2 CELL_1 CELL_1 CELL_1 CELL_1 CELL_1 CELL_1 CELL_1 CELL_1	-Remove Data LUN buttor
Close		

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 71. Modify Domain – Remove Data LUN

4. Click the Remove Data LUN button. The Select Data LUN dialog opens.



If **LUNs used in the domain are not on the SAN** is displayed, your domain has not been configured to use LUNs on the SAN. See *Configuring Domains*, on page 5-28.

ntral Subsystem : MYSERVER The Domain must have an EFI Boot					Identity : MyOperations
ionally, each Domain may have or view Data LUN details, select the I allocate a Data LUN to a Domain, link a Data LUN on the SAN to a D remove a Data LUN from a Domai	ne or more Da Data LUN and select the Da oomain, select	ata LUNs f d click the ta LUN ar t the Data	or data s Details I nd click th LUN and	torage. outton. e Add button. I click the Link bu	talled.
a luns available:				1 1	Details.
Name	Туре	Capacity	Loaded	Allocated	Description
A1300					
LUN12	RAID5	10.0GB	No	Yes	
LUN13	RAID5	1.0GB	No	No	
LUN14	RAID5	33.2GB	No	No	
LUN7	RAID1	15.0GB	No	No	
a luns selected:	•	Add		Remove	Link Details.
Name	Туре	Capacity	Loaded	Allocated	Description
A1300					
	RAID5	10.0GB	Yes	Yes	
LUN11	RAID5	33.2GB	Yes	Yes	
LUN15					
	RAIDS RAID1 RAID5	15.0GB 10.0GB	No Yes	Yes Yes	
	RAID5	10.0GB	Yes	Yes	8

Figure 72. Select Data LUN dialog - Data luns selected list

5. Select the LUN you want to remove from the current domain configuration in the **Data LUNs available selected** list and click **Details** to view LUN parameters, if required.

🍘 Edit LUN paramete	ers Dialogue de page Web
Name: Description:	LUN9
Description.	<u>ے</u>
	LUN Number: 0001 Type: RAID5 Size: 10.0GB
	LUN State: ready
Subsystem Name:	
Serial Number:	000000928303375
F EFI LUN	
F Present	Loaded Allocated

Name	Name given to the LUN when created.
Description	Brief description of the LUN.
LUN Number	Number allocated to the LUN when created.
LUN State	If the LUN is ready for use, READY is displayed. If the LUN is not ready for use ???? is displayed.
Туре	LUN configuration mode.
Size	LUN size.
Subsystem Name	Name of the subsystem containing the LUN.
Subsystem Model	Type of subystem containing the LUN.
Serial Number	Serial number of the subsystem containing the LUN.
EFI LUN	If this box is checked, the LUN is an EFI boot LUN. If this box is not checked, the LUN is a data LUN.
Present	If this box is checked, the LUN is detected. If this box is checked, the LUN is not detected.
Loaded	If this box is checked, the LUN is loaded in the Domain Manager Control pane. If this box is not checked, the LUN is not loaded in the Domain Manager Control pane.
Allocated	If this box is checked, the LUN is already allocated to a domain. If this box is not checked, the LUN is not allocated to a domain.

Figure 73. View LUN parameters dialog

6. Click Remove. The selected data LUN is moved to the Data LUNs available list.

					Identity : MyOper	rations-1
Each Domain must have an EFI Boo Optionally, each Domain may have c To view Data LUN details, select the To allocate a Data LUN to a Domain To link a Data LUN on the SAN to a t To remove a Data LUN from a Doma	one or more D: Data LUN and , select the Da Domain, select	ata LUNs f d click the ta LUN ar t the Data	or data s Details I nd click th LUN and	torage. outton. Ie Add button. I click the Link bu	tton.	
)ata luns available: Name	Type	Capacity	Loaded	Allocated	Description)etails
	Type	Capacity	Luaded	Allocated	Description	
DA1300 LUN12	RAID5	10.0GB	No	Yes		-
	CUIAN	10.008	23255			
	PAIDE	1.0GP	No	No		
ELUN13	RAID5	1.0GB	No	N0 N0		
LUN13 LUN14	RAID5	33.2GB	No	No		
LUN12 LUN13 LUN14 LUN7 LUN7						
UN13 UN14 UN7	RAID5 RAID1 RAID5	33.2GB 15.0GB	No No Yes	No No		
UN13 UN14 UN7	RAID5 RAID1 RAID5	33.2GB 15.0GB 10.0GB	No No Yes	No No Yes	Link	
UN13 UUN14 UUN7 UUN7	RAID5 RAID1 RAID5	33.2GB 15.0GB 10.0GB	No No Yes	No No Yes	Link	▼ Details
Data luns selected: Name	RAID5 RAID1 RAID5	33.2GB 15.0GB 10.0GB	No No Yes	No No Yes Remove	1	Jetails
LUN13 LUN14 LUN7 LUN9 Pata luns selected: Name DA1300	RAID5 RAID1 RAID5 Type RAID5	33.26B 15.06B 10.06B	No No Yes	No No Yes Remove	1	
LUN13 LUN14 LUN7 LUN9	RAID5 RAID1 RAID5	33.2GB 15.0GB 10.0GB	No No Yes	No No Yes Remove	1	

Figure 74. Select Data LUN dialog - Data luns available list

Dote:

If the selected data LUN is loaded in the current domain configuration or allocated to another domain, you will be requested to confirm that you want to remove this LUN from the domain. Click **OK** to confirm or **Cancel** to return to the **Select Data LUN** dialog.

7. Click $OK \rightarrow Apply$. Changes will be applied at the next domain power on.

Linking a LUN to a Fibre Channel Host



Reserved for systems connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

I Notes:

- Disk subsystems may be connected to the server via one or two HBAs.
- The redundant mode (two HBAs) requires the use of dedicated software.
- The domain must be **INACTIVE** before configuration changes can be made.
- Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.

To link a LUN to a Fibre Channel Host:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click Modify in the Command bar to open the Modify Domain dialog.

Note:

The **Modify Domain** dialog can also be accessed from the **View Domain** dialog.

	— Link LUN butto
MYSERVER_OLUO << Data LUN set >> 7 CPU © 0 MB L_2	MYSERVER_OLUO << Data LUN set >> 7 CPU © 0 MB L_2 CELL_3 L_1 CELL_0

Figure 75. Modify Domain – Link LUN dialog

4. Click the **Link LUN** button. The **Link LUNs to HBA** dialog opens, allowing you to select the primary and secondary link to the disk subsystem containing the LUN.



If the message **LUNs used in the domain are not on the SAN** is displayed, your domain has not been configured to use LUNs on the SAN. See *Configuring Domains*, on page 5-28.

🖆 Link Luns to HBA Dialogue de page Web			×			
Central Subsystem : MYSERVER Identity : MyOperations-1						
When a LUN is connected to the SAN (Storage Area Network), it must be linked to at least one Fibre Channel Host plugged into one of the Domain's PCI slots.						
To establish the Primary Link between a l	UN and a Fibre Channe	I host, select the LUN from the list ar	nd click the Set Primary Link button.			
		Set Primary Link	Set Secondary Link			
LUN Name	Redundant	Primary Link	Secondary Link			
LUN9						
)K	Cancel				
	Domain's PCI slots. To establish the Primary Link between a L For enhanced redundancy, each LUN car Fibre Channel host, select the LUN from f LUN Name LUN9	Central Subsystem : MYSERVER When a LUN is connected to the SAN (Storage Area Network), it n Domain's PCI slots. To establish the Primary Link between a LUN and a Fibre Channe For enhanced redundancy, each LUN can be linked to a second F Fibre Channel host, select the LUN from the list, select the Redu LUN Name Redundant	Central Subsystem : MYSERVER When a LUN is connected to the SAN (Storage Area Network), it must be linked to at least one Fibre C Domain's PCI slots. To establish the Primary Link between a LUN and a Fibre Channel host, select the LUN from the list at For enhanced redundancy, each LUN can be linked to a second Fibre Channel Host. To establish the Fibre Channel host, select the LUN from the list, select the Redundant check box and click the Set S LUN Name Redundant Primary Link LUN			

Figure 76. Modify domain – Link Luns to HBA dialog

5. Select the Redundant checkbox if you want to define two links to the LUN.

I Note:

If you select the **Redundant** mode, you will be informed that dedicated software is required to enable this mode and you will be requested to confirm your choice.

 Click Set Primary Link to define the main access path to the SAN. The Select HBA dialog opens, allowing you to select the domain PCI slot you want to use to access the LUN.

Select an HBA Dialogue de page Central Subsystem : MYSERVER Identity : MyOperation LUN : LUN9 Select the required PCI Slot to e the Fibre Channel Host.	र ons-1	en LUN LU	I N9 and	×
PCI Slots	WWN	Linked		
FF CELL_0: MODULE_0/IOB_0				
PCISLOT_1	789F-7894-ABCD-7889	Yes		
		No		
	7878-9898-6666-8785	No		
		No		
PCISLOT_11		No	-	
OK	Cancel		_	

Figure 77. Select an HBA dialog

7. Select the PCI slot containing the HBA to be used as the primary link to the SAN and click **OK**. The primary link is now set.

- 8. Where applicable, click **Set Secondary Link** to define the backup access path to the SAN.
- 9. Select the PCI slot containing the HBA to be used as the secondary link to the SAN and click **OK**. The secondary link is now set.
- 10.Click $\mathbf{OK} \rightarrow \mathbf{Apply}$. Changes will be applied at the next domain power on.

Adding Cells to a Domain

Notes:

- At least one Cell, containing one IOB and one QBB, must be available.
- The Operating System must support added hardware.
- The domain must be **INACTIVE** before configuration changes can be made.
- When you add a Cell to a NovaScale 6080/6160 Server domain, the server will operate as a single SMP system, using all hardware resources.
- Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.

To add Cells to a domain:

- 1. Click **Domain Manager** to open the Control pane.
- 2. Select the required domain.
- 3. Click Modify in the Command bar to open the Modify Domain dialog.

I Note:

The Modify Domain dialog can also be accessed from the View Domain dialog.

	omain Modification	
Central Subsystem Domain Identity EFI LUN Data LUNS CPU & Memory Composition Module 1 Module 0	MYSERVER MyOperations-1 MYSERVER_OLUO CALL_2 CELL_1 MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO CELL_2 CELL_1 MYCERVER_OLUO CELL_1 MYSERVER_OLUO CELL_1 CELL_1	— Add Cell butto
Close		

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 78. Modify Domain – Add Cell dialog

4. Click the Add Cell button. The Add Cells to Domain dialog opens.

I Note:

If a **No CELLs available** message appears, you must first delete the domain using the cell. See *Deleting a Domain*, on page 3-66.

NovaScale 6080/6160 Server

🖉 Add CELLs to domain Dialogue de page Web 🛛 🛛 🔀
Add CELLs to Domain
Domain : MyOperations-1 Central Subsystem: MYSERVER
Choose among configurations below the new Domain configuration.
Cells will be part of Domain on Apply. 🚺 Cells will be added to Domain on Apply.
MODULE_0 I
CELL_0 CELL_1 Total CPU 8 8 16 Memory (MB) 0 0 0
<u>QK</u> ancel

Figure 79. Add Cells to Domain dialog (mono-module server)

NovaScale 6320 Server

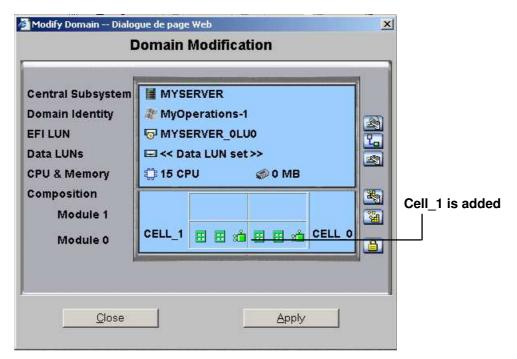
🚰 Add CELLs to domain Dialogue de page Web									
Add CELLs to Domain									
Domain : MyC	Operations-1	Central Subsys	tem: MYSERVER						
Choose among configurations below the new Domain configuration.									
Cells will be part of Domain on Apply. Cells will be added to Domain on Apply.									
	Configuration 1	Configuration	2 Configuration 3	Configuration 4	Configuration 5				
MODULE_1	AA								
MODULE_0									
	CELL_0 CELL_1	CELL_2 CELL_3	Total						
CPU	8 8	8 8	32						
Memory (MB)	0 0	0 0	0						
		<u>I</u> K			<u>C</u> ancel				

Figure 80. Add Cells to Domain dialog (bi-module server)

5. Select the required configuration and click **OK**. The letter **A** indicates the cell that will be added to the domain.

The new domain configuration is displayed in the **Modify Domain** dialog.

NovaScale 6080/6160 Server



* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 81. Modify Domain – Add Cell confirmation dialog (mono-module server)

NovaScale 6320 Server

۵	omain Modification	
Central Subsystem Domain Identity EFI LUN Data LUNS CPU & Memory Composition Module 1 Module 0	MYSERVER MyOperations-1 MYSERVER_OLUO CALL_2 MYSERVER_OLUO CELL_2 MYSERVER_OLUO MYSERVER_OLUO CELL_2 MYSERVER_OLUO MYSERVER_OLUO CELL_2 MYSERVER_OLUO MYSERVER_OLUO CELL_2 MYSERVER_OLUO MYSERVER_OLUO CELL_2 MYSERVER_OLUO CELL_2 MYSERVER_OLUO CELL_2 MYSERVER_OLUO CELL_2 MYSERVER_OLUO CELL_2 MYSERVER_OLUO CELL_2 MYSERVER_OLUO MYSERVER_OLUO CELL_2 MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO MYSERVER_OLUO CELL_2 MYSERVER_OLUO MYSERVER M	Cells_1, _2, and _3 are added

Figure 82. Modify Domain - Add Cell confirmation dialog (bi-module server)

- 6. If required, click **View Resources** for hardware details. See *Viewing Domain Hardware Resources*, on page 3-35.
- 7. Click Apply. Changes will be applied at the next domain power on.

Removing Cells from a Domain

I Notes:

- At least one Cell, containing one IOB and one QBB, must remain.
- The domain must be **INACTIVE** before configuration changes can be made.
- When you remove a Cell from a NovaScale 6080/6160 Server domain, the server can either operate as a single SMP system, using only the hardware resources in the remaining Cell, or as two SMP systems if the removed Cell is allocated to another domain.
- Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.



Warning:

When you remove a Cell from a domain, the devices attached to the corresponding IOB board are no longer available for this domain.

To remove Cells from a domain:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click Modify in the Command bar to open the Modify Domain dialog.

INote:

The Modify Domain dialog can also be accessed from the View Domain dialog.

NovaScale 6080/6160 Server

Central Subsystem Domain Identity EFI LUN Data LUNS CPU & Memory Composition Module 1 Module 0	MYSERVER MyOperations-1 MYSERVER_OLU0 S C Data LUN set >> 15 CPU		_Remove Cell butto
---	---	--	--------------------

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 83. Modify Domain - Remove Cell dialog (mono-module server)

NovaScale 6320 Server

	omain Modification	
Central Subsystem Domain Identity EFI LUN Data LUNs CPU & Memory Composition Module 1 Module 0	MYSERVER MyOperations-1 MYSERVER_OLUO << Data LUN set >> 31 CPU CELL_2 CELL_2 CELL_1 CELL_1 CELL_1 MYSERVER_OLUO CELL_3 CELL_3 CELL_4 CE	Remove Cell buttor

Figure 84. Modify Domain – Remove Cell dialog (bi–module server)

4. Click Remove Cell. The Remove Cells from Domain dialog opens.

NovaScale 6080/6160 Server

🖉 Remove CELLs from domain Dialogue de page Web	×
Remove CELLs from Domain	
Domain : MyOperations-1	Central Subsystem: MYSERVER
Choose among configurations below the new Domain configuration.	
Cells will be part of Domain on Apply. 🔀 Cells will be removed from	n Domain on Apply.
MODULE_1	
CELL_O Total CPU 8 8	
Memory (MB) 0 0	
OK	Cancel

Figure 85. Remove Cells from Domain dialog (mono-module server)

NovaScale 6320 Server

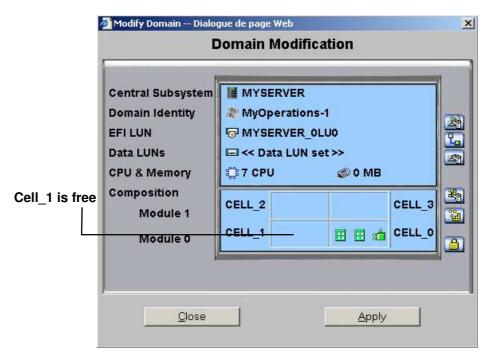
🚰 Remove CELLs from domain Dialogue de pag	ge Web	×
Remov	ve CELLs from Domain	
Domain : MyOperations-1	Central Subsystem: MYSERVER	R
Choose among configurations below the new	w Domain configuration.	
Cells will be part of Domain on Apply.	Cells will be removed from Domain on Apply.	
Configuration 1 Configuration 2	Configuration 3 Configuration 4 Configuration 5	
MODULE_1		
MODULE_0		
CELL_0 CELL_2 CELL_3 Total CPU 8 8 24 Memory (MB) 0 0 0 0		
	Cancel	

Figure 86. Remove Cells from Domain dialog (bi-module server)

5. Select the required configuration and click **OK**. The letter **R** indicates the cell that will be removed from the domain.

The new domain configuration is displayed in the Modify Domain dialog.

NovaScale 6080/6160 Server



* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 87. Modify Domain - Remove Cell confirmation dialog (mono-module server)

NovaScale 6320 Server

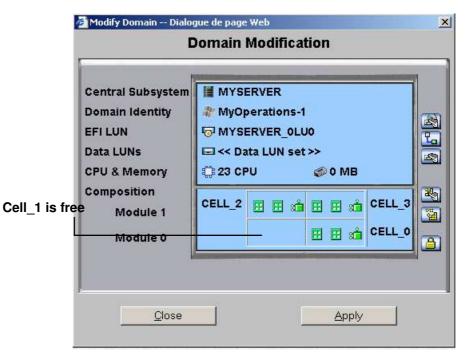


Figure 88. Modify Domain - Remove Cell confirmation dialog (bi-module server)

- 6. If required, click **View Resources** for hardware details. See *Viewing Domain Hardware Resources*, on page 3-35.
- 7. Click Apply. Changes will be applied at the next domain power on.

Locking / Unlocking Hardware Elements

You can functionally limit access to certain hardware elements. Locked elements can no longer be accessed by the current domain, but are still physically available for access by other domains. Previously locked elements can be unlocked so that they can be accessed by the domain. For details, see *Limiting Access to Hardware Resources*, on page 5-62.

I Notes:

- The domain must be **INACTIVE** before configuration changes can be made.
- Hardware locking / unlocking is only taken into account at the next domain power ON.
- · Hardware components to be functionally included (unlocked) in the domain at the next

domain power ON are marked with a yellow ¹ icon in the **Lock Request** column in the **Domain Hardware Details** page.

 Hardware components to be functionally excluded (locked) from the domain at the next domain power ON are marked with a red / yellow icon in the Lock Request column in the Domain Hardware Details page.

See Viewing Domain Configuration, Resources and Status, on page 3-32.

• Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.

The following domain hardware elements can be locked / unlocked from the **Domain Manager** control pane:

IOBs	When a domain comprises more than one cell (therefore more than one IOB), the Master IOB is the one hosting the boot disk. The other IOBs in the domain are Slave IOBs. Slave IOBs can be safely locked from a domain, but connected peripherals will no longer be accessible. Note: If the Master IOB is locked, system disks may no longer be accessible and the domain may not power up.
IOB HubLinks	All IOB HubLinks can be safely locked from a domain, but connected peripherals will no longer be accessible. IOB HubLinks are organized as follows: HubLink_1 controls PCI Slots 1 & 2 HubLink_2 controls PCI slots 3, 4, & 5 HubLink_3 controls PCI slots 6, 7, & 8 HubLink_4 controls PCI slots 9, 10, & 11 Note: If Master IOB HubLink_1 is locked, system disks may no longer be accessible and the domain may not power up.
PCI Slots	All PCI slots not connected to a boot disk can be safely locked from a domain, but connected peripherals will no longer be accessible. Note: If Master IOB PCI Slots 1, 2 are locked, system disks may no longer be accessible and the domain may not power up.
IORs	Slave IORs can be safely locked from a domain, but connected peripherals will no longer be accessible. Note: If the Master IOR is locked, the domain will not power up.

Table 20. Hardware locking options

To lock / unlock a domain hardware element:

- 1. Click **Domain Manager** to open the Control pane.
- 2. Select the required domain.
- 3. Click Modify in the Command bar to open the Modify Domain dialog.

Dote:

The Modify Domain dialog can also be accessed from the View Domain dialog.

D	omain Modifica	ation		
Central Subsystem Domain Identity EFI LUN Data LUNS CPU & Memory Composition Module 1 Module 0	MYSERVER MyOperations- MYSERVER_OL CELL_2 CELL_2 CELL_1	.U0	CELL_3 CELL_0	_ Lock HW butto
	CELL_1	E E så		

* Module 1 (Cell_2 & Cell_3): does not equip mono-module servers

Figure 89. Modify Domain – Lock Hardware

4. Click the Lock Hardware Components button. The Lock Domain Hardware Resources dialog opens.

🚰 Lock Domain Hardware Resources Dialogue de page W	eb 🔀
Domain : MyOperations-1 EFI LUN : MYSERVER_0LU0	Central Subsystem : MYSERVER
This Domain comprises: CELL_0	
To temporarily exclude a hardware component from the All non-excluded components can be locked.	nis domain, it must first be locked .
To lock a hardware component, select the Co To unlock a hardware component, select the	
Image: Construction of the const	
<u>O</u> K <u>Cancel</u>	<u>H</u> elp

Figure 90. Lock domain hardware resources dialog

- 5. Expand the component tree to view the hardware element you want to lock / unlock.
- 6. Select the corresponding checkbox to lock the element or deselect to unlock a previously locked element.

×
Central Subsystem : MYSERVER
omain, it must first be locked .
onent Checkbox and click OK. Iponent Checkbox and click OK.
Help

Figure 91. Lock domain hardware resources dialog - PCI slot selected

7. Click $\mathbf{OK} \rightarrow \mathbf{Apply}$. Changes will be applied at the next domain power on.

Deleting a Domain

I Note:

The domain must be **INACTIVE** to be deleted.

Once loaded in the **Domain Manager** Control pane, a domain can be deleted from the current configuration. When the domain has been deleted, the corresponding resources can be re–allocated to another domain.

To delete a domain from the current configuration:

- 1. Click Domain Manager to open the Control pane.
- 2. Select the required domain.
- 3. Click Delete in the Command bar. The Confirm Remove Domain dialog opens.

NovaScale 6080/6160 Server

NovaScale	Domain Manager	Bull 🎡
Powering View 💽 Expand All 🗐	Schemes 🔂 Gave Snapshot	2 Help
Click the domain you want to manag	е.	
Domain	Domain State Functional State	
	<u> </u>	Power On
		Power Off
L MyOperations-2		Reset.
Confirm Remove Domain Dialo Domain : MyOperations-2	gue de page Web	Eorce Power Off
	,	PowerLogs
Are you sure you want to configuration ?	Reguest Logs	
S comparation :		Dump
Yes	No	
		View
		Modify
		Delete
		Sand Street
-	×	0.000
150 52 6 6 7 2 8 6		

Figure 92. Delete domain dialog - mono-module server

NovaScale 6320 Server

NovaScale	Doma	in Manager	Bull 🚔
Powering View Depand All	šchemes 🗗 S <u>a</u> ve Snapsho	t	Help
Click the domain you want to manag	e.		
		-	
Domain	Domain State	Functional State	
MYSERVER		<u>~</u>	Power On
			Power Off
			Reset
MyOperations-3			Eorce Power Off
Confirm Remove Domain Dialo		x	Power Logs
Domain : MyOperations-2		ral Subsystem : MYSERVER	Reguest Logs
			Dump
Are you sure you want t configuration ?	o remove this domain fro	om the current domain	
Yes	1	No	iew
			Modify
	hall for the	Frank Strachel	Delete
		v	
	Stera Maria	CANNER ANDRES	•

Figure 93. Delete Domain dialog - bi-module server

4. Click **Yes** to confirm deletion of the selected domain from the current configuration.

An information box opens, informing you that the domain has been successfully deleted. The domain is no longer visible in the Control pane.

Microsoft	Internet Explorer
⚠	Domain MyOperations-2 is successfully removed from the current domain configuration.
	ОК

Figure 94. Domain deleted information box

5. Click **OK** to continue.

You can now re–allocate the resources of the deleted domain. See Adding a Cell to a Domain, on page 3-55

I Note:

Domain modifications are not automatically saved and are only applicable while the selected domain is loaded in the **Domain Manager** Control pane. If required, you can manually save the new configuration for future use. See *Saving the Current Domain Configuration Snapshot*, on page 3-11.

What To Do if an Incident Occurs

When an incident occurs during a domain **Power ON / Power OFF / Force Power OFF / Reset** sequence, a message is displayed in the **Domain Status** panel and a trace is recorded in the **Domain POWER Logs**. Table 21 indicates the messages that may be displayed during an incorrect power sequence.

NovaScale 5xx0 Servers

SEQUENCE	ERROR MESSAGE
Powering up	Powering up all components failed
	Timeout during Power On
Bios loading	BIOS initialization timeout
	BIOS init timeout during recovery
Starting EFI	Timeout during starting EFI
Powering down	Powering down failed
	Powering down timeout
Force Power OFF	Terminating timeout
	Terminating KO

NovaScale 6xx0 Servers

SEQUENCE	ERROR / INFORMATION MESSAGE		
	POWERING ON FAILED		
POWERING ON	TIMEOUT DURING POWER ON		
	POWERING ON SUSPENDED		
	DOMAIN HALTED		
	RECOVERING BIOS		
POWERED ON – LOADING BIOS	BIOS LOADING TIMEOUT		
BIOS READY – STARTING EFI	TIMEOUT DURING START EFI		
POWERING DOWN	POWER DOWN FAILED		
	TIMEOUT DURING POWER DOWN		

Table 21.Domain power sequence error messages

PAM software also informs connected and non-connected users via:

- the PAM Web interface (Status Pane and/or User History files),
- e-mail (users with an appropriate Event Message subscription),

 an autocall to the Bull Service Center (according to your maintenance contract) for analysis and implementation of the necessary corrective or preventive maintenance measures, where applicable.

As Customer Administrator, you have access to the **System History** files and associated **Help Files**. As Customer Operator, you have access to the **User History** and/or **Web Event Messages**, and associated **Help Files**, pre–configured by your Customer Administrator.

You will find all the advice you need in the **Help Files** associated with the **System / User History** and **Web Event Messages** you are authorized to view.

Whether you open a **Web Event Message** or a **System** / **User History** file, the resulting display and utilities are the same. See *Viewing and Managing PAM Event Messages and History Files*, on page 4-28.

I Note:

All incidents are systematically logged in the **System History** files, which you can view as Customer Administrator at any time.

Dealing with Incidents

When you open the incident **Help File**, you may be requested to contact your Customer Service Engineer or perform straightforward checks and actions:

Checking POST Codes

If you are requested to check POST Codes, see Viewing Domain BIOS Info, on page 3-30.

Checking Hardware Exclusion Status

If you are requested to check hardware exclusion status, see *Excluding / Including Hardware Elements*, on page 4-25.

Checking Hardware Connections

If you are requested to check hardware connections, use Appendix *Cabling Diagrams* to manually and visually ensure that all cables are correctly inserted in their corresponding hardware ports.

Rebooting Maestro / Resetting the PMB

If you are requested to reboot Maestro or to reset the PMB, see *Checking, Testing, and Resetting the PMB*, on page 4-45.

Rebooting the PAP Application

If you are requested to reboot the PAP application:

- 1. From the Microsoft Windows home page, click Start \rightarrow Programs \rightarrow Administrative Tools \rightarrow Component Services.
- 2. From Component Services, click Console Root \rightarrow Component Services \rightarrow Computers \rightarrow My Computer \rightarrow COM+ Applications \rightarrow PAP.
- 3. Right click **PAP** to open the shortcut menu. Click **Shutdown**.
- 4. Activate the required PAM version to reboot the PAP application. See *Deploying a PAM Release*, on page 5-23 and *Activating a PAM Version*, on page 5-24.

Powering OFF/ON the Domain

If you are requested to Power OFF/ON or Force Power OFF a domain, ensure that you have saved data and closed open applications. See *Powering ON a Domain*, on page 3-14, *Powering OFF a Domain*, on page 3-18, and *Forcing a Domain Power OFF*, on page 3-21.

Resetting a Domain

If you are requested to Reset a domain, see Manually Resetting a Domain, on page 3-24.

Performing a Domain Memory Dump

If you are requested to perform a domain memory Dump, see *Performing a Domain Memory Dump*, on page 3-26.

Turning the Site Breaker Off

The server is not equipped with a physical power button and can only be completely powered down by turning the site breaker off.

Chapter 4. Monitoring the Server

This chapter explains how, as Customer Administrator, you can supervise server operation and how as Customer Administrator and/or Operator you can view and manage PAM Messages, Histories, Archives and Fault Lists. It includes the following topics:

- Introducing PAM Monitoring Tools, on page 4-2
- Using the Hardware Search Engine, on page 4-9
- Viewing PAM Web Site User Information, on page 4-11
- Viewing PAM Version Information, on page 4-12
- Viewing Server Hardware Status, on page 4-13
- Displaying Detailed Hardware Information, on page 4-15
- Excluding / Including Hardware Elements, on page 4-25
- Managing PAM Messages, Histories, Archives and Fault Lists, on page 4-28
- Viewing PAM Messages and Fault Lists, on page 4-30
- Viewing, Archiving and Deleting History Files, on page 4-33
- What to Do if an Incident Occurs, on page 4-39
- Creating an Action Request Package, on page 4-47
- Creating a Custom Package, on page 4-48

Note:

Customer Administrators and Customer Operators are respectively advised to consult the *Administrator's Memorandum*, on page xxviii or the *Operator's Memorandum*, on page xxx for a detailed summary of the everyday tasks they will perform.

For further information about user accounts and passwords, see *Setting up PAP Unit Users*, on page 5-17.

Introducing PAM Monitoring Tools

Main Central SubSystem (CSS) hardware components are managed by the comprehensive Platform Administration and Maintenance (PAM) software specifically designed for Bull NovaScale Servers.

I Note:

Peripheral devices such as disk racks, PCI adapters, KVM switch, local console, and the PAP unit are managed by the Operating System and/or by dedicated software. For details on how to monitor these devices, please refer to the user documentation provided on the Bull NovaScale Server Resource CD–Rom.

PAM software permanently monitors and regulates CSS hardware during operation, ensuring automatic cooling for compliance with environmental requirements, power ON / OFF sequences, component presence and functional status checks, and event handling and forwarding.

In-depth monitoring is a Customer Administrator function and the PAM **Hardware Monitor** is only available to users with administrator access rights. However, all connected users are permanently and automatically informed of CSS functional status via the PAM **Status** pane and of domain status via the PAM **Domain Manager Control** pane.

The PAM **Event Messaging** system offers comprehensive event message subscription options allowing both connected and non–connected users to be informed of server status. See *Customizing the PAM Event Messaging System*, on page 5-114 for details.

To refresh the PAM display:

- Click the Refresh Tree button in the PAM Tree toolbar to refresh the PAM Tree.
- Click a node in the PAM Tree to refresh the corresponding Control pane display.
- Click the Refresh Web Page button to return to the PAM Home Page.

I Note:

DO NOT use the Refresh option obtained by right clicking the mouse in the browser window.

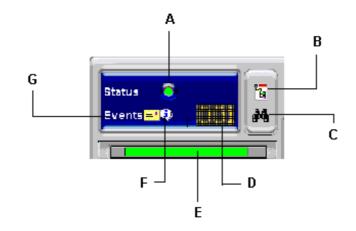
Viewing System / Component Status

What You Can Do

- Check system status
- Check CSS module availability status
- Check event message status
- View hardware presence status
- View hardware functional status
- View server hardware status
- View FRU information
- View firmware information
- View thermal status
- View power status
- View temperature status
- View fan status
- View jumper status
- View PCI slot status

PAM Status Pane

When you log onto the PAM Web site, you are able to check system status at a glance via the **Status** pane which provides quick access to CSS Module availability status, server functional status, and pending event message information.



Α	System Functional Status icon	Ε	CSS Availability Status icon
В	Presence/Functional Status toggle button	F	Event Message Severity icon
С	Event Message Viewer		New Event Message icon
D	Pending Event Message icon		

Figure 95. PAM Status pane

CSS Availability Status

The CSS availability status bar reflects the operational status of the data link(s) between the Platform Management Board (PMB) embedded in each CSS Module and the PAP Unit. Each CSS module is represented by a zone in the status bar.

- When a CSS Module PMB is detected as **PRESENT**, the corresponding zone in the status bar is **GREEN**.
- When a CSS Module PMB is detected as **ABSENT**, the corresponding zone in the status bar is **RED**.
- When you hover the mouse over the status bar, an **Infotip** displays the **presence status** of CSS Module PMB PAP Unit data links.

The following figure represents the status bar for a bi–module server. One CSS Module PMB is detected as PRESENT and the other is detected as ABSENT.



A: Bar red (CSS Module_0 not available)

Figure 96. CSS Module availability status bar

System Functional Status

If the system is operating correctly, the **System Functional Status** icon is green. Table 22. explains possible system functional status indications.

lcon	Status	Explanation
Green	NORMAL	No problem detected. The system is operating correctly.
O Yellow	WARNING	Minor problem reported. The system is still operational.
Orange	CRITICAL	Serious problem reported. The system is no longer capable of operating correctly. PAM may generate an OS shutdown request.
e Red	FATAL	Major problem reported. PAM may automatically shut down the OS. The system is partially or totally stopped.
O Purple	NOT ACCESSIBLE	Status cannot be computed (detection circuit error).

Table 22. CSS hardware functional status icons



Important:

If the system functional status icon and/or CSS availability status bar is/are not green, see *What to Do if an Incident Occurs*, on page 4-39.

Event Message Status

The **New Event Message** icon informs you that new messages have arrived and that you can click the **View Event Message** icon to view them (the number of unprocessed event messages is also displayed). See *Consulting Event Messages, Hardware Faults and History/Archive Files*, on page 0.

The **Event Message Severity** icon indicates the set maximum severity level of unprocessed event messages. See *Understanding Message Severity Levels*, on page 4-29.

PAM Tree Pane

As Customer Administrator, you can view the presence and functional status of each hardware element from the PAM Tree pane. The PAM Tree pane is refreshed at your request. Use the **Refresh PAM Tree** button to update the display when required.



Important:

To maintain a trace of transient faults, PAM Tree functional and/or presence status indicators will not change color until the domain has been powered OFF/ON, even if the error has been corrected.

Displaying Presence Status

When, as Customer Administrator, you log onto the PAM Web site, server hardware presence status is displayed in the PAM Tree by default (square, colored indicator next to the **Hardware Monitor** node). If you expand the PAM Tree, the presence status of all hardware elements is displayed.

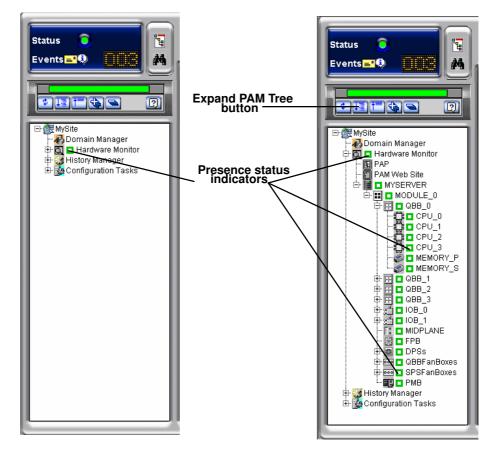


Figure 97. PAM Tree hardware presence status display

When hardware presence status is normal, all presence status indicators are green. Table 23. explains possible hardware presence status indications.

Presence Status Indicators

Indicator	Status	Explanation
Green	NORMAL	This hardware element: - is physically present and accessible.
D Red	MISSING	 This hardware element: was present in a previous configuration but has disappeared.
Red/white	MISSING	 A sub-component of this hardware element: was present in a previous configuration but has disappeared.
Purple	NOT ACCESSIBLE	This hardware element: - cannot be computed (detection circuit error).
Purple/white	NOT ACCESSIBLE	A sub-component of this hardware element: - cannot be computed (detection circuit error).
Purple/red	MISSING AND NOT ACCESSIBLE	 A sub-component of this hardware element: was present in a previous configuration but has disappeared. A sub-component of this hardware element: cannot be computed (detection circuit error).

Table 23. Hardware presence status indicators



Important:

If a PAM Tree hardware presence status indicator is not green, this could be normal if a hardware element has been removed for maintenance. See *What to Do if an Incident Occurs*, on page 4-39.

Displaying Functional Status

You can toggle the PAM Tree to view system / hardware functional status (round, colored indicator next to the **Hardware Monitor** node). If you expand the PAM Tree, the functional status of all hardware elements is displayed. Functional Status is a composite indicator summarizing Failure Status, Fault Status, Power Status, and Temperature Status indicators, where applicable.

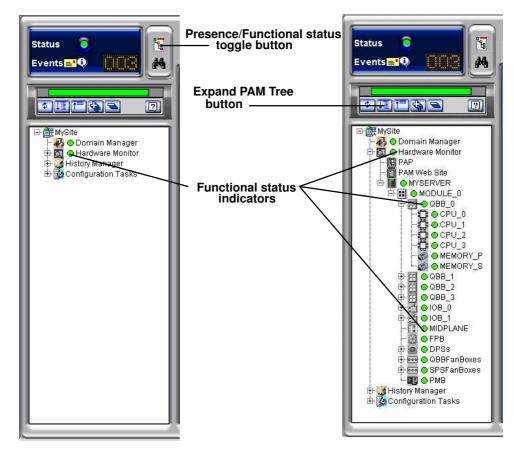
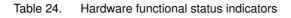


Figure 98. PAM Tree functional status display

When hardware functional status is normal, all functional status indicators are green. Table 24. explains possible hardware functional status indications.

Indicator	Status	Explanation		
Green	NORMAL	No problem detected. This hardware element is operating correctly.		
- Yellow	WARNING	Minor problem reported. This hardware element is still operational.		
Orange	CRITICAL	Serious problem reported. This hardware element is no longer capable of operating correctly. PAM may generate an OS shutdown request.		
Red	FATAL	Major problem reported. PAM may automatically shut down the OS. System integrity is jeopardized.		
e Purple	NOT ACCESSIBLE	The functional status of this hardware element cannot be computed (detection circuit error).		

Functional Status Indicators





To maintain a trace of transient faults, PAM Tree functional and/or presence status indicators will not change color until the domain has been powered OFF/ON, even if the error has been corrected. Overall server functional status is indicated by the system Functional Status icon in the Status pane. For further details, see *What to Do if an Incident Occurs*, on page 4-39.

I Note:

If, when you toggle the PAM Tree to view hardware functional status, the functional status of a hardware element is not normal, the **Hardware Monitor** node will automatically expand to the level of the malfunctioning hardware element, as shown in Figure 99.

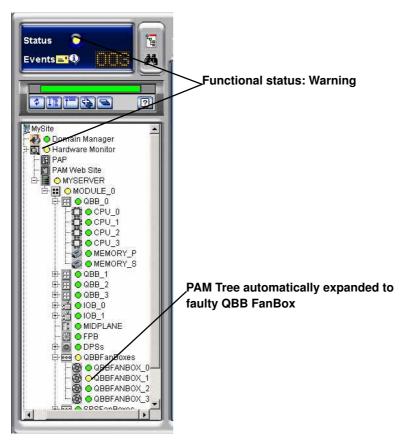


Figure 99. PAM Tree – automatically expanded functional status display

Using PAM Utilities

What You Can Do

- Search for excluded hardware elements
- Search for missing hardware elements
- View PAM Web site information
- View PAM version information
- Exclude / include hardware elements

Using the Hardware Search Engine

The **Hardware Search** engine allows you to search for and view hardware elements corresponding to selected criteria, for example **Excluded** or **Missing** hardware elements.

I Notes:

- Excluded hardware elements are those that have been **logically** excluded from the server. See *Excluding / Including Hardware Elements*, on page 4-25.
- Missing hardware elements are those that have been **physically** removed from the server (e.g. for maintenance).

To search for specific hardware:

1. Click Hardware Monitor in the PAM tree to open the Hardware Search page.



Figure 100. Hardware Search engine

2. Select the required search criteria from the dropdown box and click OK.

3. Once the search is complete, results are displayed in the control pane.

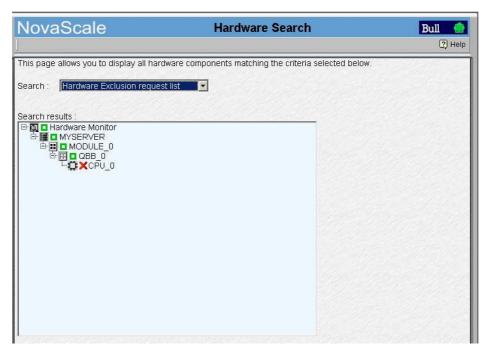


Figure 101. Hardware Search result list (example)

Viewing PAM Web Site User Information

As Customer Administrator, you can view the list of PAM users currently logged onto the PAM Web site by clicking Hardware Monitor \rightarrow PAM Web Site.

The Web site version and a list of connected users and session details are displayed in the **Control** pane. The current session is indicated by the $\[equivee]$ icon.

I Note:

You can view user roles by selecting a user and clicking **View Roles** in the toolbar. The roles associated with this user are displayed in the **Roles for selected session** dialog.

Scale [®]	022.55		eb Site Monitoring	
PAM WEB S Par	lite mSite Version : 9.0.	0.0		
	Se	ssions	on Pamsite	
Current	Connected users		Session started at	Address
9	FRCLS5778\pap	merci	redi 6 juillet 2005 09:23:46	Local Host
	reg redies to	- statet t	ed session Dialogue de page Web User: FRCLS5778\pap	×
		Status	Role Name	
		0	DOMAIN_MANAGER	
		0	DOMAIN_OPERATOR	
		0	DOMAIN_WATCHER	
		0	STORAGE_MANAGER	
		0	HARDWARE_MANAGER	
			HARDWARE_OPERATOR	
		0	HARDWARE_WATCHER	
		0	MAINTENANCE_ENGINEER	
		0	SYSTEM_HISTORY_MANAGER	
		0	SYSTEM_HISTORY_WATCHER	
		0	USER_HISTORY_MANAGER	
		0	EVENT MANAGER	

Figure 102. PAM Web Site user information

Viewing PAM Version Information

PAM version information may be useful to help your Customer Service Engineer solve software–related problems.

To view PAM version, site data and release data, click **Hardware Monitor** \rightarrow **PAP**. The **PAP Unit Information** Control pane opens, indicating PAM software version details along with **PAM Site Data** and **Release Data** directory paths:

- the PAM **Release Data** directory is used for all the files delivered as part of PAM software to ensure configuration consistency.
- the PAM **Site Data** directory is used for all the the files produced by PAM software (history files, configuration files) concerning Customer site definition and activity.

To view complete PAM resource file information, click **More Info**. The **PAM Versions** dialog opens.

Scale	F	PAP Unit Information
	nistration Managemer	
PAM \	/ersion : 8.13.1	More Info
Paths:		
Site D		am Files\BULL\PAM\PAMSiteData\1 TA\SITEDATA
		am Files\BULL\PAM\8.13.1
Relea		TAIRELEASEDATA
PAM Versio	ns Dialogue de page Wet	
P	latform Administration PAM Version	: 8.13.1
	aths	. 0.10.1
		. C:\Program Files\BULL\PAM\PAMSiteData\1
	Site Data	VPAMDATA\SITEDATA
	Release Data	. C:\Program Files\BULL\PAM\8.13.1 \PAMDATA\RELEASEDATA
01	ncrpc.dll	
	File Version	: 8,9,0,0
	File Description	
	Legal Copyright	
	Company Name	: BULL S.A.
	Internal Name	: oncrpc
	Product Name	: PAP Software
	Product Version	8,9,0,0
P	AP.DLL	. 0. 40. 4. 0
	File Version	: 8, 13, 1, 0 : PAP Module
	File Description Legal Copyright	: Copyright © 2001-2005
	Company Name	: BULLSA

Figure 103. PAP unit information

If you want to deploy a new PAM release or activate another PAM version, see *Deploying a New PAM Release*, on page 5-23 and *Activating a PAM Version*, on page 5-24.

Viewing Server Hardware Status

When you click the **CSS Name** in the PAM tree (e.g. **MYSERVER** in the figure), the **Hardware Monitor** displays a visual representation of the presence and functional status of CSS module components in the Control pane. Each primary hardware element functional status indicator is a clickable hotspot leading directly to the detailed **Hardware Status** page.

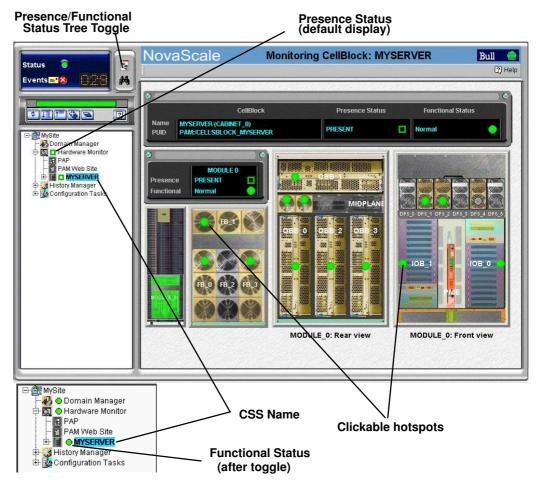


Figure 104. PAM Hardware Monitor

As you click a hardware element hotspot in the Control pane, you will notice that the PAM Tree automatically expands to the selected component level.

I Note:

If a component is not part of your configuration, it is grayed out in the display. If a component is part of your configuration but has been detected as "missing", it is displayed in red.

The meanings of presence and functional status indicators are explained in Table 23. *Presence Status Indicators*, on page 4-6 and Table 24.*Functional Status Indicators*, on page 4-7.



Important:

If a functional status indicator is not green, see *What to Do if an Incident Occurs*, on page 4-39.

Dote:

The NovaScale 6320 Server Hardware Monitor Control pane displays a visual representation of the presence and functional status of the components of both CSS modules.

Viewing Detailed Hardware Information

For detailed information about module / component / sub–component status, you can either click the corresponding hotspot in the **Hardware Monitor** Control pane or click the required hardware element in the PAM Tree to open the **Hardware Status** page.

General Tab

The General tab gives access to the following information:

Present	Presence Status	
😑 Normal	Functional Status	
🔺 Normal	Failure Status	
🔶 No fault	Fault Status	Display Fault list

Presence Status	Indicates if the hardware element is physically present and correctly configured. See <i>Presence Status Indicators</i> , on page 4-6.
Functional Status	Indicates if the hardware element is functioning correctly. See <i>Displaying Functional Status</i> , on page 4-7. NOTE: Functional Status is a composite indicator summarizing Failure Status, Fault Status, Power Status, and Temperature Status indicators, where applicable.
Failure Status	Indicates if a failure has been detected on the hardware element. NOTE: This feature is reserved for future use. See <i>Failure Status Indicators</i> , on page 4-16.
Fault Status	Indicates if a fault has been detected on the hardware element. See <i>Fault Status Indicators</i> , on page 4-16.
Display Fault List	When a fault is detected, a fault message is generated and the Display Fault List button gives direct access to the list of faults recently encountered by this hardware element. See <i>Consulting Event Messages, the Hardware Faults List, and History Files</i> , on page 0.
Exclusion Request	The Exclusion Request checkbox is used to logically exclude/include hardware elements from the domain at the next power–on. See Excluding / Including Hardware Elements, on page 4-25.

Figure 105. General Hardware Status page (example)

Failure Status Indicators:

Indicator	Status	Explanation		
Green	NORMAL	PAM software has detected no failures on this hardware element.		
A Orange	DEGRADED	PAM software has detected that this hardware element is running at sub-standard capacity but is not jeopardizing system performance.		
Red	FAILED	PAM software has detected a failure that may be jeopardizing system performance.		
A Gray	UNKNOWN	PAM software is not receiving diagnostic information from this hardware element.		

Fault Status Indicators

Fault Status, accessible via the General tab,

Indicator	Status Explanation		
o reen	NORMAL	PAM software has detected no faults on this hardware element.	
ed Red	FAULTY	PAM software has detected 1 or more fault(s) on this hardware element.	
• Gray	UNKNOWN	PAM software is temporarily meaningless (e.g. hardware element missing).	

Table 25. Fault status indicators

FRU Info Tab

The **FRU Info** tab gives access to Field Replaceable Unit identification data for the hardware element, such as Manufacturer's name, product name, part number,

General 😑	FRU Info	Power		Temperature	1	
_						
Board info-						
Manufacturi	ing date & time	e 9/11/2	002 14:38	3		
Manufactur	er	Intel				
Product name		QBB				
Part numbe	A5595	A55955-305				
Serial number		ABBD24326449				
FRU to orde	76678850-xxx					
Manufacturi	Manufacturing test revision 0001					
Manufacturi	ing test result	SF_O	<			

Figure 106. FRU data (example)

Firmware Tab (Midplane & PMB only)

The Firmware tab gives access to firmware version data for the hardware element.

Note:

Firmware versions may differ.

General 😑 🕴 FRU Info 📔 FIRI	MWARE Power / Temperature 👃
Maestro Running Maestro Version Maestro Origin BootRom Origin	RPC Emulator: Maestro Version 3.0.0 PAP disk Updated BootRom
Firmware Factory Bootrom Version Updated BootRom Version ROM Maestro version Maestro Image Choice	RPC Emulator: Factory BootRom Version 3.0.0 RPC Emulator: Updated BootRom Version 3.0.0 RPC Emulator: Maestro Version 3.0.0 PMB Flash ROM
KCS CPLD Version	0.2

Figure 107. Firmware data (example)

Thermal Zones (CSS module only)

Thermal Zones, accessible via the **Thermal zones** tab, shows the thermal zones monitored by PAM software. A cooling error in a thermal zone will affect all the hardware elements in that zone. See *Displaying Functional Status*, on page 4-7.

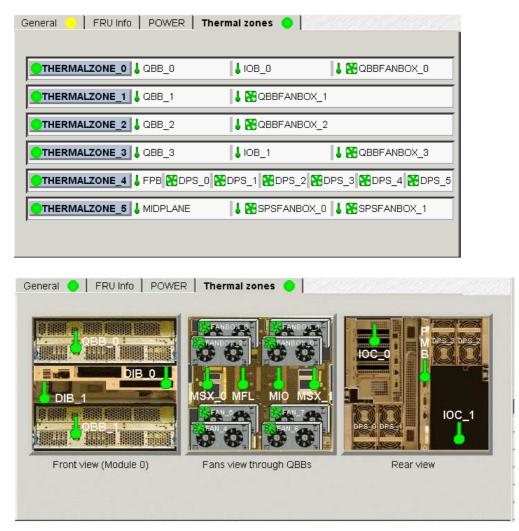


Figure 108. CSS module thermal zone details

I Note:

When a thermal fault is detected, a fault message is generated and the **General** tab **Display Faults List** button gives direct access to the corresponding logs.

Power Tab

The **Power** tab gives access to power status data for the hardware element, indicating main and standby power state and/or power–specific faults for each converter. See *Displaying Functional Status*, on page 4-7.

Once connected to the Customer's site power supply, server hardware elements initialize to the stand-by mode. Server hardware elements initialize to the main mode when the domain is powered up.

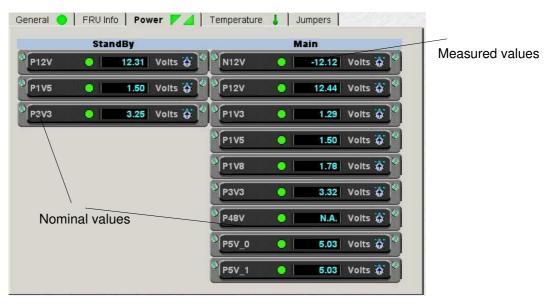


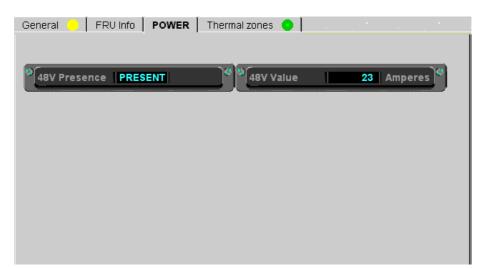
Figure 109. Converter power status details (example)

Indicator	Status	Explanation	
Green	MAIN POWER ON	Hardware element main / standby power is on.	
Green	STANDBY POWER ON	Thardware element main / standby power is on.	
 White	MAIN POWER OFF	Hardware element main / standby power is off.	
V White	STANDBY POWER OFF		
Red	MAIN POWER FAULT/FAILED	PAM software has detected 1 or more main / standby	
Red	STANDBY POWER FAULT/FAILED	power fault(s) on this hardware element.	
Gray	MAIN POWER MISSING/UNKNOWN	PAM software cannot read main / standby power status	
Gray	STANDBY POWER MISSING/UNKNOWN	on this hardware element.	

Table 26. Power tab status indicators

CSS Module Power Tab

The **Power** tab gives access to power status data for the CSS module DPS units.



48V Presence	Meaning
PRESENT	At least 1 DPS unit is ON.
ABSENT	All DPS units are OFF.
Not Found	PAM software cannot read CSS module power status.
48V Value	Current intensity in Amperes (varies according to configuration).

Figure 110. CSS module power status details

Dote:

When a power–specific fault is detected, a fault message is generated and the **General** tab **Display Faults List** button gives direct access to the corresponding logs.

Temperature Tab

The **Temperature** tab gives access to temperature status data for the hardware element, indicating overtemperature or temperature–specific faults.

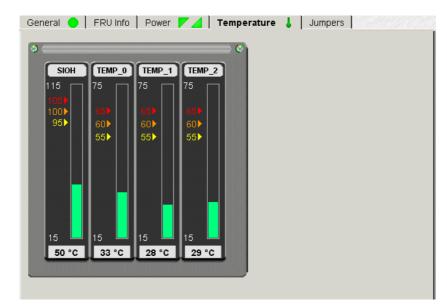


Figure 111. Temperature probe status details (example)

Indicator	Status	Explanation
Green	NORMAL	Hardware element temperature is normal.
<mark> </mark> Yellow	WARNING	PAM software has detected a rise in temperature on this hardware element, but it is still operational and is not jeopardizing system performance.
, Orange	CRITICAL	PAM software has detected a critical rise in temperature on this hardware element. PAM will generate an OS shutdown request.
Red	FATAL	PAM software has detected a fatal rise in temperature on this hardware element. PAM will automatically shut down the OS.
 Gray	UNKNOWN	PAM software cannot read temperature status on this hardware element.

Table 27. Temperature tab status indicators

I Note:

When a temperature–specific fault is detected, a fault message is generated and the **General** tab **Display Faults List** button gives direct access to the corresponding logs.

Fan Status (QBB Fanboxes, SPS Fanboxes and DPS units only)

Fan Status, accessible via the **Fans** tab, indicates fan status, speed and supply voltage. See *Displaying Functional Status*, on page 4-7.

During normal operation, the display depicts fan rotation.

Each fanbox is equipped with 2 hot-swap, redundant, automatically controlled fans.

Image: Note:

If all fans are halted in the display, check that your browser allows you to play animations in Web pages.



Figure 112. Fanbox details (example)

Jumper Status (IOB only)

Reserved for Customer Service Engineers.

Jumper Status, accessible via the **Jumpers** tab, indicates the current position of BIOS Recovery, ClearCMOS, and ClearPassword jumpers. Reserved for Customer Service Engineers.

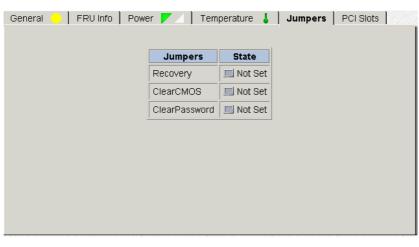
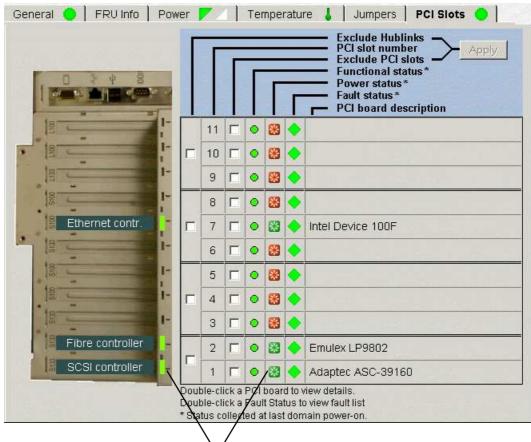


Figure 113. IOB jumpers tab

PCI Slots (IOB only)

PCI Slot Status, accessible via the **PCI Slots** tab, shows PCI board type and the functional and power status of PCI slots at the last domain power–on.

When a fault is detected on a PCI slot, a fault message is generated and an **IOB Fault List** button gives direct access to the list of faults recently encountered on the IOB. The **Exclude** checkboxes are used to exclude / include one or more PCI slots in the domain at the next power–on. See *Excluding / Including Hardware Elements*, on page 4-25.



Power status indicators

Figure 114. PCI slots tab

Clicking a PCI board gives access to **PCI Slot Details**: such as Minor and Signal status, Logical, Bus and Device numbers, Bus and Board frequencies, Vendor, Device and Revision identifiers, Susbsystem Vendor and Device identifiers and Class code.

Minor status	ΠχΠΠ
Logical number	0x10
Bus number	0x50
Device number	0x01
Signal status	0x0B
Bus frequency	PCI 66MHz
Bus frequency Board frequency	PCI 66MHz PCI 66MHz
Board frequency	PCI 66MHz
Board frequency nction 0 Vendor identifier	PCI 66MHz (0x9005) Adaptec
Board frequency nction 0 Vendor identifier Device identifier	PCI 66MHz (0x9005) Adaptec (0x00C0) ASC-39160
Board frequency nction 0 Vendor identifier Device identifier SubSys Vendor id.	PCI 66MHz (0x9005) Adaptec (0x00C0) ASC-39160 0x9005
Board frequency nction 0 Vendor identifier Device identifier	PCI 66MHz (0x9005) Adaptec (0x00C0) ASC-39160

Figure 115. PCI slot details dialog (example)

Excluding / Including Hardware Elements

As Customer Administrator, if a redundant hardware element is faulty, you can logically **Exclude** it from the domain until it has been repaired or replaced. To be taken into account, exclusion requires domain power OFF/ON.

A complete list of logically excluded hardware elements can be obtained via the Hardware Monitor search engine. See *Using the Hardware Search Engine*, on page 4-9.



Important:

Hardware elements must be excluded with care. The exclusion of non-redundant hardware elements will prevent the server domain from booting. Exclusion guidelines are given in the Hardware exclusion guidelines table, on page 4-27.

Excluding a Hardware Element



Important:

The exclusion of a hardware element is only taken into account at the next domain power ON. A complete list of logically excluded hardware elements can be obtained via the Hardware Monitor search engine. See *Using the Hardware Search Engine*, on page 4-9.

- 1. Check that the hardware element is "excludable" and that exclusion will not affect domain availability. See *Hardware Exclusion Guidelines*, on page 4-27.
- 2. Click the required hardware element in the **PAM Tree** to open the **Hardware Status** page.

Present	Presence Status	
😑 Normal	Functional Status	
🔺 Normal	Failure Status	
🔶 No fault	Fault Status	Display Fault list

Exclusion request checkbox: select to exclude

Figure 116. Inclusion

- 3. Select the Exclude checkbox and click Apply. The Exclude dialog box opens.
- 4. Click **Yes** to confirm exclusion of the selected hardware element. Exclusion will be taken into account at the next domain power ON.



If you want to check domain hardware status, click **Domain Manager** \rightarrow **Resources** \rightarrow **More info...** to open the **Domain Hardware Details** page.

 Hardware components to be logically excluded from the domain at the next domain power ON are marked with a red / yellow × icon in the Lock Request column in the Domain Hardware Details page.

See Viewing Domain Configuration, Resources and Status, on page 3-32.

Including a Hardware Element

Important:

The inclusion of a hardware element is only effective once the domain has been powered OFF/ON.

1. Click the required hardware element in the **PAM Tree** to open the **Hardware Status** page.

Present	Presence Status	
😑 Normal	Functional Status	
🔺 Normal	Failure Status	
🔶 No fault	Fault Status	Display Fault list

Exclusion request checkbox: deselect to include

Figure 117. Example Hardware Status page

- 2. Deselect the Exclude checkbox and click Apply. The Include dialog box opens.
- 3. Click **Yes** to confirm inclusion of the selected hardware element. Inclusion will be taken into account at the next domain power ON.

Notes:

If you want to check domain hardware status, click **Domain Manager** \rightarrow **Resources** \rightarrow **More info...** to open the **Domain Hardware Details** page.

 Hardware components to be logically included in the domain at the next domain power ON are marked with a gray icon in the Exclusion Request column in the Domain Hardware Details page.

See Viewing Domain Configuration, Resources and Status, on page 3-32.

Hardware Exclusion Guidelines

Hardware Element		Exclusion Guidelines
IMPORTANT:		
not power up: • Master IOB • Master IOB HubLink 1 • Master IOB PCI Slots 1 • Master IOR • Master IOB QBB FanB Note: When a domain comprises	2 0 or 3) re than one c The other IC Slave IOBs c	ell (therefore more than one IOB), the Master IOB DBs in the domain are Slave IOBs. can be safely excluded from a domain, but eripherals will no longer be accessible.
	If the Master	IOB is excluded, system disks will no longer be nd the domain will not power up.
IOB HubLink	connected pe IOB HubLink HubLink_1 c HubLink_2 c HubLink_3 c HubLink_4 c If Master IOE	inks can be safely excluded from a domain, but eripherals will no longer be accessible. s are organized as follows: ontrols PCI Slots 1 & 2 ontrols PCI slots 3, 4, & 5 ontrols PCI slots 6, 7, & 8 ontrols PCI slots 9, 10, & 11 3 HubLink_1 is excluded, system disks will no cessible and the domain will not power up.
PCI Slot	connected pe If Master IOE longer be ac	can be safely excluded from a domain, but eripherals will no longer be accessible. 3 PCI Slots 1, 2 are excluded, system disks will no cessible and the domain will not power up. <i>ts</i> , on page 4-23.
IOR	connected pe	can be safely excluded from a domain, but eripherals will no longer be accessible. IOR is excluded, the domain will not power up.
QBB	At least one	QBB must be "included" in a domain.
CPU		CPU must be "included" in a QBB. re excluded from a QBB, the QBB itself is
SPS	At least one	SPS must be "included" in a Midplane.
DPS Unit		S unit can be safely excluded at a given time. At S units are required to ensure server operation.
QBB FanBox	be automatic If QBB FanB automatically If the exclude no longer be If the exclude longer be acc If QBB FanB	ed IOB is a Slave IOB, connected peripherals will

Table 28. Hardware exclusion guidelines

Managing PAM Messages, Histories, Archives and Fault Lists

What You Can Do

- View Web event messages
- Acknowledge Web event messages
- Sort and locate Web event messages
- View e-mailed event messages
- Display the hardware faults list
- View history files online
- View archive files online
- View history files offline
- View archive files offline
- Manually archive history files
- Manually delete archive files

A comprehensive set of Event Message subscriptions allows connected and non-connected users to be notified of system status and activity. Pre-defined **Event Message Subscriptions** forward event messages for viewing/archiving by targeted individuals and/or groups, with an appropriate subscription, via:

- the PAM Web interface (connected Customer Administrator / Operator),
- User History files (connected Customer Administrator / Operator),
- e-mail (non-connected recipients Customer Administrator / Operator / other)
- SNMP traps (non-connected recipients Customer Administrator / Operator / other),
- an autocall to the Bull Service Center (according to your maintenance contract).

I Note:

Subscriptions can be customized to suit your working environment. For further details, see *Customizing the PAM Event Messaging System*, on page 5-114.

Understanding PAM Message Severity Levels

Messages are graded into four severity levels as shown in the following table.

lcon	Severity Level	Explanation
<u> </u>	SUCCESS	An action requested by a user has been performed correctly or a function has been completed successfully. Information message, for guidance only.
٢	INFORMATION	System operation is normal, but status has changed. Information message, for guidance and verification.
	WARNING	An error has been detected and overcome by the system or a processed value is outside standard limits (e.g. temperature). System operation is normal, but you are advised to monitor the hardware concerned to avoid a more serious error . See What to Do if an Incident Occurs, on page 4-39.
8	ERROR	An error has been detected and has not been overcome by the system. System integrity is jeopardized. Immediate action is required . See <i>What to Do if an Incident Occurs</i> , on page 4-39.

Table 29. Message severity levels

During normal operation, messages will be marked with the **SUCCESS** or **INFORMATION** icon.

I Note:

A single message may have different severity levels. For example, the message *<Unit absent>* may be the result of a:

- Presence Status request, indicating component status (information level).
- Action request, indicating an error. The command cannot be executed because the component is absent (error level).



Important:

If a message is marked with the WARNING or ERROR symbol, see *What to Do if an Incident Occurs*, on page 4-39.

Viewing PAM Messages and Fault Lists

Whether you consult a **Web Event Message**, a **Faults List**, a **System** / **User History** or **Archive**, the resulting display and utilities are the same.

				Display	Events 📫
	S	Gelect all eve	nts	Unselect all events	Acknowledge selected events Help
St	ring [contained in a	ttribute - All - T Cas	e sensitive Search Reset
				7 event(s) / 0	selected
Ack	SV	ID	Local Time 🔨	Target	String
П	= 😣	28282214	03/15/04 - 10:18:41	/DOMAIN_MYOPERATIONS-1	Domain MyOperations-1 time out during the power on sequence
		identi Index UTCT UTCD Local Seven Sourc	imeStamp ate Date Time ity :e	2B2B2214 247 1079342321434 0315/04 0315/04 10:18:41 ERROR PAM Kernel:/PAPDomain//Three /DOMAINGROUP_MYSERVER// Domain MvOperations-1 tir	
		String Data	ı		sage 25/82214
	H 🙂	28282211	03/15/04 - 10:14:57	JDOMAIN_MYOPERATIONS-1	Domain MyOperations-1 inactive
	. Q	2828400A	03/15/04 - 10:14:11	FRCLS5778\ca	WEB Session started. User: FRCLS5778\ca. SessionId: 69800496
	H	28284008	03/15/04 - 10:10:20	FRCLS5778\sa	WEB Session ended. User: FRCLS5778\sa. SessionId: 69800495

Button	Use
Acknowledge selected events	To remove viewed messages from the pending event list.
Select all events	To select all Ack checkboxes.
Unselect all events	To deselect all Ack checkboxes.
Help	To access context sensitive help.
Search – String – Contained in attribute – Case sensitive	 To search for specific messages, according to: Alphanumeric identifier (ID), e.g. 2B2B2214 above. Message Source, Target, String, Data attributes. Upper case / lower case letters.
Reset	To delete the current search history.
Ack	To select the message for acknowledgement.
+	To view the message and access context sensitive help.
Help on message	To view the related help message.

Column Header*	Use
Туре	To sort messages according to severity level.
ID	To sort messages according to Message IDentifier, e.g. 2B2B2214 above.
Local Time	To sort messages according to message local time and date.
Target	To sort messages according to the component referred to in the message.
String	To sort messages according to message text string.

* Double click the column header to sort messages Figure 118. Display Events page

Specimen Message Help File

The **Help File** explains the message and indicates related actions, where applicable, as shown in Figure 119.

	Message ID: 2B2B2214
Text	Domain < <i>domain name</i> > time out during the power-on sequence
Description	Domain status information.
Actions	Wait until the domain turns to the "INACTIVE" state then power ON the domain. See <u>Powering ON a Domain</u>
	If the problem persists, contact your Customer Service Engineer.
Comments	

Figure 119. Specimen message help file

Viewing and Acknowledging PAM Web Event Messages

To consult Web event messages:

- 1. From the **Status** pane, click the **M** icon to open the **Display Events** page. See Figure 118. *Display Events page*, on page 4-30.
- 2. Click the + sign to expand the required message.
- Click the Help on message <xxx> button at the bottom of the message page for direct access to the corresponding Help File. See Table 119 Specimen message help file, on page 4-31.

In addition to standard utilities, the **Web Event Message** display allows users to acknowledge messages.



Important:

A maximum of 100 messages are accessible from the Status Pane. Users are advised to regularly acknowledge processed messages to allow the arrival of new messages. Acknowledged messages are stored in the PAMHistory file and can be viewed when required.

See Viewing, Archiving, and Deleting History Files, on page 0.

To acknowledge Web event messages:

- 1. Select the required checkbox(es) in the **Ack** column or click **Select all events** to automatically select all checkboxes in the **Ack** column.
- 2. Click Acknowledge selected events.

Acknowledged messages are removed from the pending event list and are no longer accessible via the **Status** pane. The **Pending Event Message Indicator** in the **Status** pane is updated automatically.

Sorting and Locating Messages

From the message display, when you hover the mouse in the **Type** column, an **InfoTip** gives a brief summary of the message allowing you to rapidly scan the list for the required message(s). Use the standard + and – signs to expand and collapse selected messages.

It may be difficult to locate a message if the list is long, the following short–cuts can be used to organize the display and to locate required messages.

Sorting Messages

Messages can be sorted by clicking a column header to sort the column, e.g. by **Severity (SV)**, **ID**, **Time**, **Target**, **String**. Once sorted, messages will be displayed according to the selected column header.

Locating messages

The **Search** engine can be used to filter the number of displayed logs according to **Source**, **Target**, **String**, **Data** attributes. All four attributes are selected by default, but a single attribute can be selected from the dropdown menu.

To search the message list:

- 1. If known, enter an alphanumeric message string in the String field.
- 2. Select the required attribute field from the contained in attribute dropdown menu.
- 3. Case sensitive is selected by default, deselect if required.
- 4. Click Search to display search results.
- 5. If you want to carry out another search, click Reset to delete the search history.

Viewing E-mailed Event Messages

These messages contain the same information as those available to connected users, but do not contain the corresponding help file. See Figure 118. *Display Events page*, on page 4-30.

Viewing Hardware / Domain Fault Lists

The **Fault List** page allows you to view messages corresponding to the faults recently encountered by a given hardware element.

To view a Hardware Fault List:

- 1. Toggle the PAM Tree to display hardware functional status.
- 2. Click the faulty element node to open the Hardware Status page.
- 3. Click **Display Fault List** to open the **Fault List** page.
- 4. Click the + sign to expand the required message.
- 5. Click the **Help on message** <**xxx**> button at the bottom of the message page for direct access to the corresponding **Help File**.

To view a Domain Fault List, see Viewing a Domain Fault List, on page 3-25.

Viewing, Archiving and Deleting History Files

History and archive files are systematically stored in the **PAMSiteData** directory:

< WinDrive>:\Program Files\BULL\PAM\PAMSiteData\< DataCompatibilityRelease>

The **PAM History Manager** allows you to view, archive and delete history files online and provides you with the tools required to download and view history and archive files offline.

As Customer Administrator / Operator, you will frequently consult **PAMHistory** files for information about system operation.

I Note:

System histories and/or archives are only accessible to members of the Customer Administrator group, whereas User histories and/or archives are accessible to members of both the Customer Administrator and Customer Operator groups. For further details about histories and archives, see *Creating a User History*, on page 5-125 and *Editing History Parameters*, on page 5-126.

Viewing History Files Online

Note:

Empty history files cannot be viewed.

To view a history file online:

- 1. From the PAM Tree pane, click History Manager to open the Control pane.
- 2. Select the Histories tab.

	4	All Type Histories: 9			
Archive / Basket	Name	Description	Nb Messages	Last archiving date	
	🔛 HistoryTrace	PAPHistory internal trace	3	22/09/04-00:00	
F	🖼 InterventionReportHistory	Intervention Report history	0	none	
E.	S IPMITrace	PAM IPMI Features Trace	0	none	
E.	S MaestroHistory	Maestro history	0	none	
	S MaestroTrace	Maestro Trace History	0	none	
	B PAMHistory	PAM software history	2	22/09/04-00:00	
	S PAMTrace	PAM software trace	0	22/09/04-00:00	
	RPCTrace	RPC internal trace history	0	none	-
Empty histo Iownloader ownloadin	g history or archive files	iewed, archived or Histories, O Archives in basket	View	Properties	

Figure 120. History Manager Control pane - Histories tab

- 3. Highlight the required type of history and click **View**. All the messages contained in the selected history are displayed.
- 4. Select the message you want to view in detail. The resulting display is the same as for event messages. See Table 118 *Display Events page*, on page 4-30.

Viewing History Properties

To view history properties:

- 1. From the **PAM Tree** pane, click **History Manager** to open the Control pane.
- 2. Select the **Histories** tab.
- 3. Highlight the required type of history and click **Properties**. The **History Properties** dialog opens.

ruscories propercie	s Dialogue de page Web	x
	History properties	
Name:	HistoryTrace	
Description:	PAPHistory internal trace	
Directory:		
Туре:	SYSTEM	
Number of messages:	3	
FileSize (Kb):	2	
Type:	Automatic archiving policy Number of days	
Value:		
Directory:		
Directory.		
	Archives properties	
Duration:	Delete archive files after 90 days	
	Close	

Name	History name.	
Description	Optional description of history contents.	
Directory	Pathname of the directory used to store histories. If this field is blank, the default Histories directory is used.	
	Automatic Archiving Policy	
Туре	Number of days: The system will automatically create an archive for this history after the number of days specified in the Value field.	
	Size in KBytes: The system will automatically create an archive when this history reaches the size in KBytes specified in the Value field.	
	Number of Records: The system will automatically create an archive when this history reaches the number of records specified in the Value field.	
Value	Number of days / KBytes / records – according to archiving type.	
	Archive Properties	
Duration	Regular interval at which the archive is automatically deleted.	

Figure 121. History properties

I Note:

As Customer Administrator, you can modify History properties from the **Histories** Control pane. See *Editing History Parameters*, on page 5-126.

Manually Archiving History Files

In general, history files are automatically archived at regular periods. However, you can choose to manually archive a history file at any time, if required.

Image: Note:

Empty history files cannot be archived.

To manually archive a history file:

- 1. From the PAM Tree pane, click History Manager to open the Control pane.
- 2. Select the Histories tab.
- 3. Select the required type of history checkbox or select the **Archive All** checkbox to archive all histories.
- 4. Click **Archive checked histories**. A dialog box opens, requesting you to confirm file archiving.
- 5. Click **OK** to confirm. The selected history(ies) are archived.

Viewing Archive Files Online

Note:

Empty archive files cannot be viewed.

To view an archive file online:

- 1. From the PAM Tree pane, click History Manager to open the Control pane.
- 1. Select the Archived histories tab.

stories	Archived histories				
listory Name:	PAMHistory Select a History		Selection	Archiving date	
Vocarinti	HistoryTrace		-	2004-07-22 00h00m05s	
AM softw	InterventionReportHistory			2004-07-21 11h35m46s	
	MaestroHistory			2004-07-21 00h00m04s	-
lumber	MaestroTrace PAMHistory		Г	2004-07-20 00h00m02s	-
	PAMTrace RPCTrace			2004-07-14 00h00m05s	-
	SANTrace		-	2004-07-13 00h00m02e	
nan in the	g history or archive files				
downloa	d history or archive files, sel	ect files and add the	em to the ba	sket. Add selected i	files to basket
nen all de	sired files are in the basket,	click "Download Co	mpressed F	ile" Download Cor	npressed File
01	basket details	Histories, 0 Archive	s in the has	ket	

Figure 122. History Manager Control pane – Archived histories tab

- 2. Use the scroll-down menu to select the type of history archive you want to display. The corresponding list of archived histories appears in the **Archiving date** zone.
- 3. Highlight the required archiving date and click **View**. All the messages contained in the selected archive are displayed.
- 4. Select the message you want to view in detail. The resulting display is the same as for event messages. See Table 118 *Display Events page*, on page 4-30.

Viewing Archive Properties

To view archive properties:

- 1. From the **PAM Tree** pane, click **History Manager** to open the Control pane.
- 2. Select the Archived histories tab.
- 3. Use the scroll–down menu to select the type of history archive you want to display. The corresponding list of archived histories appears in the **Archiving date** zone.
- 4. Highlight the required archiving date and click **Properties**. The **Archive Properties** dialog opens.

Archive properties				
Name:	PAMHistory_2005-09-17_00h00m00s			
Description:	PAM Software History			
Directory:	tory: D:\Program Files\BULL\PAM\PAMSiteData\1 \PAMDATA\SITEDATA\Archives			
Date:	005-09-17 00:00:00			
Duration: Delete archive files after 90 days				
Number of 14 messages:				
FileSize (Kb): 6				
Creation Mode: Automatic archiving				

Name	History name, archiving date and time.
Description	Optional description of history contents.
Directory	Pathname of the directory used to store histories. If this field is blank, the default Histories directory is used.
Date	Archiving date and time.
Duration	Regular interval at which the archive is automatically deleted.
Number of messages	Number of messages in the archive.
File Size (Kb)	Archive size in Kb.
Creation Mode	Mode used to create the archive: Automatic archiving Manual archiving History error

Figure 123. Archive properties

I Note:

As Customer Administrator, you can modify Archive properties from the **Histories** Control pane. See *Editing History Parameters*, on page 5-126.

Manually Deleting a History Archive File

In general, history archive files are automatically deleted at regular periods. However, you can choose to manually delete a history archive file at any time, if required.

To manually delete a history archive file:

- 1. From the PAM Tree pane, click History Manager to open the Control pane.
- 2. Select the Archived histories tab.
- 3. Use the scroll–down menu to select the type of history archive you want to delete. The corresponding list of archived histories appears in the **Archiving date** zone.
- 4. Select the required archive checkbox or select the **Delete All** checkbox to delete all archives.
- 5. Click **OK** to confirm. The selected archives are deleted.

Downloading History / Archive Files for Offline Viewing

The **PAM History Manager** allows you to compress and download history and/or archive files to a local or network directory for offline viewing. The downloaded files can then be viewed with the **History Viewer** tool which displays all the sort options available online, but does not contain the corresponding help file.

I Note:

Empty history / archive files cannot be downloaded.

Downloading History Viewer

Before downloading history and/or archive files for offline viewing, you are advised to download the **History Viewer** tool:

- 1. From the **PAM Tree** pane, click **Downloads** \rightarrow **History Viewer** to download the **HistoryViewer.zip** file.
- 2. Unzip all the files in the HistoryViewer.zip file to a directory of your choice.
- 3. Select the **HistoryViewer.htm** file and create a shortcut on your desktop. The History Viewer tool is now ready for use.

Downloading History / Archive Files

To download history / archive files:

- 1. From the PAM Tree pane, click History Manager to open the Control pane.
- 2. Select the Histories or Archived histories tab, as required.
- 3. Select the required type of history or archive:

Histories

 Select the required history checkbox or select the Basket All checkbox to download all histories.

Archives

- Use the scroll-down menu to select the required archive. The corresponding list of archived histories appears in the Archiving date zone.
- Select the required archive checkbox or select the Basket All checkbox to download all archives.
- 4. Click Add selected files to basket.

Dote:

Files already selected for downloading can be viewed by clicking Show basket details.

5. Click **Download Compressed File** to compress and download the histories/archives to the required local or network directory for offline viewing.

Viewing History / Archive Files Offline

- 1. Unzip all the files in the History.zip file to a directory of your choice.
- 2. Click the HistoryViewer.htm file to open the View History File page.
- 3. Complete the **History File Name** field and click **Read**, or click **Browse** to search for and load the required history or archive file.
- 4. Select the message you want to view in detail. The resulting display is the same as for event messages. See Table 118 *Display Events page*, on page 4-30.

Note:

For further details about histories and archives, see *Creating a User History*, on page 5-125 and *Editing History Parameters*, on page 5-126.

What to Do if an Incident Occurs

Server activity is systematically logged in the **System History** files, which you can view as Customer Administrator at any time.

When an incident occurs, PAM software informs users via:

- the Status pane,
- Event Message / History file,
- e-mail / SNMP traps (users with an appropriate Event Message subscription),
- an Autocall to the Bull Service Center (according to your maintenance contract).

In most cases, PAM software handles the incident and ensures operational continuity while the Bull Service Center analyzes the incident and implements the necessary corrective or preventive maintenance measures.

Whenever you are informed of an incident:

- functional or presence status indicators / icon NOT green,
- · event message or history file marked with the WARNING or ERROR symbol,

you are advised to connect to the PAM Web site (if you are not already connected) and to investigate the incident.

Investigating Incidents

- 1. Check the system functional status icon in the **Status** pane. If the icon is not green, the server is not operating correctly. See Table 31. *System Functional Status / Expected Domain State*, on page 4-40.
- 2. Open the Domain Manager Control pane and identify the domain using the faulty

hardware element by hovering the mouse over the **Domain Memo** icons to display the Cell infotip.

NovaScale 5080/5160 Server

Cell 0	Module0_IOB0, Module0_QBB0, Module0_QBB1
Cell 1	Module0_QBB2, Module0_QBB3

NovaScale 6080/6160 Server

Cell 0	Module0_IOB0, Module0_QBB0, Module0_QBB1
Cell 1	Module0_IOB1, Module0_QBB2, Module0_QBB3

NovaScale 6320 Server

Cell 0	Module0_IOB0, Module0_QBB0, Module0_QBB1
Cell 1	Module0_IOB1, Module0_QBB2, Module0_QBB3
Cell 2	Module1_IOB0, Module1_QBB0, Module1_QBB1
Cell 3	Module1_IOB1, Module1_QBB2, Module1_QBB3

Table 30. Domain cells

- If the domain is operating normally, **RUNNING** is displayed in the **Domain State** field.

 If the domain has been automatically powered down, INACTIVE is displayed in the Domain State field. See Table 31. System Functional Status / Expected Domain State, on page 4-40 and Chapter 3. Managing Domains, on page 3-1.



If system functional status is critical (flashing red icon), immediately save data, close open applications and shut down the domain Operating System.

lcon	System Functional Status	Expected Domain State
O Green	NORMAL	RUNNING
O Yellow	WARNING	RUNNING
Orange Flashing	CRITICAL	 INACTIVE (auto Power OFF) / RUNNING An automatic Power OFF request may be sent by PAM software to the domain Operat- ing System: If the domain Operating System is configured to accept PAM Power OFF requests, it automatically saves data, closes open applications and shuts down. If the Operating System is not configured to accept PAM Power OFF requests, you are advised to manually save data, close open applications and shut down the Operating System. Note: When system functional status is FATAL, the icon does not always remain red. Therefore, an orange functional status.
e Red Flashing	FATAL	INACTIVE An automatic Force Power OFF command may be performed by PAM software on the domain Operating System. Note: The Operating System does not have time to save data and close applications before it is shut down.
O Purple	NOT ACCESSIBLE	INACTIVE

System Functional Status / Expected Domain State

Table 31.CSS functional status / domain state

- 3. Toggle the **PAM Tree** to view hardware functional status (round, colored indicator next to the **Hardware Monitor** node). The PAM Tree will automatically expand down to the faulty hardware element.
- 4. Check domain state by clicking Domain Manager in the PAM tree.
- 5. Click the faulty hardware element to open the corresponding Hardware Status page.
- 6. Check **Power** and **Temperature** tabs. If a power and/or temperature indicator is NOT green, a power– and/or temperature–specific fault has occurred. See *Power Status Indicators* and *Temperature Status Indicators*, on page 4-19.
- Click Display Faults List for direct access to server logs. If the Display Faults List button is not accessible, click History Manager → System → PAM History for the corresponding log. See Viewing Detailed Hardware Status, on page 4-15.

8. Expand the log for direct access to the corresponding **Help File** (at the bottom of the page). The **Help File** explains the message and how to deal with the incident.



Important:

To maintain a trace of transient faults, PAM Tree functional and/or presence status indicators will not change color until the domain has been powered OFF/ON, even although the error has been corrected.

Dealing with Incidents

When you open the incident **Help File**, you may be requested to perform straightforward checks and actions or to contact your Customer Service Engineer. This section explains how to respond to the following requests:

- Check Environmental Conditions
- Check Hardware Availability
- Check Hardware Connections
- Exclude a Hardware Element
- Check Hardware Exclusion Status
- Check Hardware Fault Status
- Check Power Status
- Check Temperature Status
- Check Histories and Events
- Check SNMP Settings
- Check Autocall Settings
- Check PAM Version
- Check MAESTRO Version
- Check Writing Rules
- Power ON/OFF the Domain
- Reboot the PAP Application
- Modify LUN Properties
- Check, Test, and Reset the PMB
- Create an Action Request Package

Checking Environmental Conditions

If you are requested to check environmental conditions, ensure that the computer room is compliant with the specifications set out in Appendix A.*Specifications*.

Checking Hardware Availability

If you are requested to check hardware availability:

- Check that the CSS module availability status bar is green. If the status bar is not green, the CSS module has not been detected by PAM software. Check the physical PMB to PAP unit Ethernet link connection.
- 2. Toggle the **PAM Tree** to view hardware presence status (square, colored indicator next to the **Hardware Monitor** node).
- 3. Expand the **Hardware Monitor** node to view the presence status of all hardware elements. If a hardware presence status indicator is NOT green, the hardware element is either missing or not accessible.



If a PAM Tree hardware presence status indicator is not green, this could be normal if the corresponding hardware element has been removed for maintenance.

Checking Hardware Connections

If you are requested to check hardware connections, use *Cabling Diagrams* to manually and visually ensure that all cables are correctly inserted in their corresponding hardware ports.

Excluding a Hardware Element and Checking Exclusion Status

As Customer Administrator, you can logically **Exclude** a redundant hardware element from the domain until it has been repaired or replaced. Exclusion is taken into account at the next domain power ON. See *Excluding / Including Hardware Elements*, on page 4-25.

If you are requested to check hardware exclusion status, use the **Hardware Search** engine to search for and view **Excluded** hardware elements. See *Using the Hardware Search Engine*, on page 4-9.

You can also view domain hardware exclusion status from the **Domain Hardware Details** page. See *Viewing Domain Configuration, Resources and Status*, on page 3-32.

Checking Hardware Fault Status

If you are requested to check hardware fault status:

- 1. Click the corresponding hardware element in the PAM Tree to open the **Hardware Status** page.
- 2. Check the **General** tab. If the fault status indicator is NOT green, a fault has occurred. See *Fault Status Indicators*, on page 4-16.

Checking Hardware Power Status

If you are requested to check hardware power status:

- 1. Click the corresponding hardware element in the PAM Tree to open the **Hardware Status** page.
- 2. Check the **Power** tab. If a power indicator is NOT green, a power–specific fault has occurred. See *Power Status Indicators*, on page 4-19.

Checking Hardware Temperature Status

If you are requested to check temperature status:

- 1. Click the corresponding hardware element in the PAM Tree to open the **Hardware Status** page.
- Check the **Temperature** tab. If a temperature indicator is NOT green, a temperature–specific fault has occurred. See *Temperature Status Indicators*, on page 4-21.

Checking Histories and Events

If you are requested to check histories / events, refer to *Viewing and Managing PAM Event Messages and History Files*, on page 4-28.

Checking SNMP Settings

If you are requested to check SNMP settings, IP address, or server name for an event subscription:

- 1. From the PAM Tree, click Configuration Tasks \rightarrow Events \rightarrow Channels and check that the SNMP Channel is enabled.
- 2. Click **Subscriptions** to view configured subscriptions. Channel type is indicated in the **Channel** column.
- 3. Select the required **SNMP Channel** subscription from the list and click **Edit** to view / modify **SNMP** settings.

Checking Autocall Settings

If you are requested to check Autocall settings:

- From the PAM Tree, click Configuration Tasks → Autocalls and check that the Enable Autocalls checkbox is selected.
- 2. Check dispatch modes and corresponding settings.

Checking PAM Version

If you are requested to check PAM version:

From the PAM Tree, click **PAP** to display the **PAP Unit Information** page. PAM version is displayed at the top of the page.

Checking MAESTRO Version

If you are requested to check MAESTRO version:

From the PAM Tree, click Hardware Monitor \rightarrow PMB to open the PMB Status page. Click the **FIRMWARE** tab to view MAESTRO version.

Checking Writing Rules

If you are requested to check writing rules, see PAM Writing Rules, on page xxv.

Powering OFF/ON a Domain

If you are requested to Power OFF/ON or Force Power OFF a domain, ensure that you have saved data and closed open applications. See *Managing Domains*, on page 3-1.

Rebooting the PAP Application

If you are requested to reboot the PAP application:

- 1. From the Microsoft Windows home page, click Start \rightarrow Programs \rightarrow Administrative Tools \rightarrow Component Services.
- 2. From Component Services, click Console Root \rightarrow Component Services \rightarrow Computers \rightarrow My Computer \rightarrow COM+ Applications \rightarrow PAP.
- 3. Right click **PAP** to open the shortcut menu. Click **Shutdown**.
- 4. Activate the required PAM version to reboot the PAP application. See *Deploying a New PAM* Release, on page 5-23 and *Activating a PAM Version*, on page 5-24.

Modifying LUN Properties

If you are requested to modify LUN properties:

- Refer to *Configuring SCSI Data Disks*, on page 5-4 and to the appropriate Disk Subsystem documentation.
- Refer to *Configuring FDA Data Disks*, on page 0 and to the appropriate Disk Subsystem documentation.

Checking, Testing and Resetting the PMB

The PMB is located in the module at the base of the cabinet and links the server to the PAP unit via an Ethernet link. You may be required to carry out the following checks / actions:

- Check that PMB LED #0 is blinking green (PMB booted correctly): When the system is powered on, the 7 activity and status LEDs (LED #1–LED #7) are switched off and LED #0 is blinking. See *PMB Leds and Code Wheels*, on page 4-46.
- Check PMB code wheel settings. See PMB Leds and Code Wheels, on page 4-46.
- Check that the Ethernet cable linking the server to the PAP unit is correctly inserted and that the Ethernet link LED is green.
- Check the PAP PMB link by pinging the PAP and the PMB:

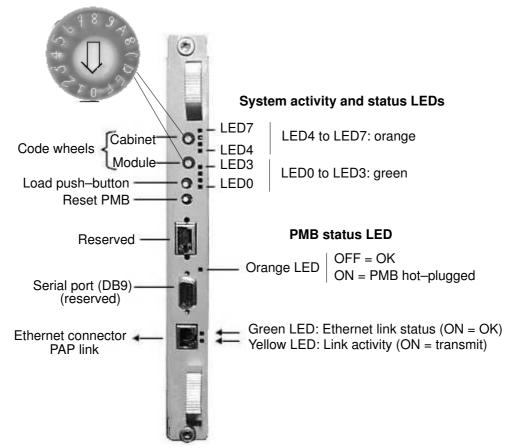
PAP Address	PMB 0 Address	PMB 1 Address
10.10.240.240	10.10.0.1	10.10.0.2

• Reset the PMB by pressing the RESET button. PMB firmware will be rebooted. See *PMB Leds and Code Wheels*, on page 4-46.

PMB LEDs and Code Wheels

Up to 16 Central Subsystems can be linked, via Platform Management Boards (PMBs) to a single PAP unit, to provide a single point of administration and maintenance.

Each PMB is equipped with two code wheels used to identify each Central Subsystem and each CSS module in your configuration. These code wheels are set prior to shipping (factory default setting), according to configuration.



For guidance, PMB code wheel settings are indicated in the following table:

CSS	CSS PMB Code Wheel	PAM CSS HW Identifier	CSS Module PMB Code Wheel		
	FIND COde Wheel		CSS Module 0	CSS Module 1	
1st	0	00	0	1	
2nd	1	01	0	1	
3rd	2	02	0	1	
4th	3	03	0	1	
5th	4	04	0	1	
6th	5	05	0	1	
7th	6	06	0	1	
8th	7	07	0	1	
9th	8	08	0	1	
10th	9	09	0	1	
11th	A	10	0	1	
12th	В	11	0	1	
13th	С	12	0	1	
14th	D	13	0	1	
15th	E	14	0	1	
16th	F	15	0	1	

Figure 124. PMB LED location

Creating an Action Request Package

PAM software allows you to collect all the files required to troubleshoot a Bull NovaScale Server via the **Action Request Package** tool. Once collected, files are compressed to ZIP format for easy transfer to the BULL Remote Maintenance Center.

Dote:

Before PAM Release 8, the **BackUpRestore** tool is used to copy and restore the files stored in the **PAM SiteData** directory.

Creating a Default Action Request Package

1. From the **PAM Tree** pane, click **Downloads**. The **Action Request Package** page opens.

NovaScale	Downloads	Bull 🔴
1		(?) Help
	Action Request Package	
This tool is used to build and downloa	ad a ZIP package for enclosure with an Action Request.	
Action Request reference:	Build Action Request Package View Details	

Figure 125. Action Request Package control pane

- 2. Enter the **Action Request reference** given by the Customer Support Center and click **Build Action Request package** to collect, compress and download ALL the files contained in the various directories.
- 3. Transfer the ZIP to the BULL Remote Maintenance Center for analysis.

Creating a Filtered Action Request Package



Important:

To ensure the consistency of Action Request Package contents, you are advised to only use filtering options if specifically required.

- 1. From the **PAM Tree** pane, click **Downloads**. The **Action Request Package** page opens.
- 2. Enter the **Action Request reference** given by the Customer Support Center and click **Show Details** to display filtering options.

	Action Re	equest Package	
This tool is used to build and download a Z	IP package for enclosure with a	an Action Request.	
Action Request reference:	Build Action Request pa	ckage Hide Deta	<u>ills</u>
Action Request details			
Windows Event Log : Application* Windows Event Log : Security* Windows Event Log : System*	Archived History files Logs Error Report	From (MM/DD/YYYY) To (MM/DD/YYYY)	9/4/2005
			today
Current History files			
* Requires Administrator privileges		Set Default Va	alues

Filterable File Types	Action	Dates				
Current Files						
Windows Event Log: Application	These files are selected by					
Windows Event Log: Security	default. If you do not want to in-	All current Windows Event Log files.				
Windows Event Log: System	clude these files, deselect					
Current History Files	the corresponding check- boxes.	All history files in the PAM Site Directory.				
	Archived Files					
Archived History Files	These files are selected by default.	Default dates:				
Logs	If you do not want to in- clude these files, deselect	Today + 3 preceding days. Enter new From / To dates to include archives outside the				
Error Reports	the corresponding check- boxes.	default dates.				

Figure 126. Action Request Package details

- 3. Clear filterable checkboxes as required and/or change archive collection dates.
- 4. Click **Build Action Request package** to collect, compress and download ALL the files contained in the various directories.
- 5. Transfer the ZIP file to the BULL Remote Maintenance Center for analysis.

Creating a Custom Package

PAM software allows you to collect one or more selected files from the PAM Site Data Directory via the **Custom Package** tool. Once collected, files are compressed to ZIP format.

To create a Custom Package:

1. From the **PAM Tree** pane, click **Downloads**. The **Custom Package** page opens.

	Custom P	ackage	
This tool is used to build and download a	user-defined ZIP package.		
Custom Package reference:	Bullo Cuatom Paokage		
Files :			
		Add	
		Remove	
1			

Figure 127. Custom Package control pane

2. Enter the **Custom Package reference** and click **Add** to select the PAM Site Data files to be included in the package.

🖹 Choose a file	Dialogue de page Web	δ
Directory	<sitedatapath></sitedatapath>	
ŧ	SubFolders	Files
Archives BIOS BIOSFTP Collection Config Domains ErrorReport ES Events FaultHandler		bd35.vbs
Open		
		OK Cancel

Figure 128. Custom Package Add files pane

- 3. Click **Build Custom Package** to collect, compress and download the selected files.
- 4. Save the resulting ZIP file as required.

Chapter 5. Tips and Features for Administrators

This chapter explains how, as Customer Administrator, you can configure the server to suit your working environment. It includes the following sections:

- Section I Setting up Server Users and Configuring Disks, on page 5-2
- Section II Using EFI Utilities, on page 5-7
- Section III Customizing PAM Software, on page 5-16
- Section IV Configuring Domains, see page 5-28
- Section V Creating Event Subscriptions and User Histories, on page 5-113

IF Notes:

Customer Administrators and Customer Operators are respectively advised to consult the *Administrator's Memorandum*, on page xxviii or the *Operator's Memorandum*, on page xxx for a detailed summary of the everyday tasks they will perform.

Before proceeding to configure the server, please refer to PAM Writing Rules, on page xxv.

For further information about user accounts and passwords, see *Setting up PAP Unit Users*, on page 5-17.



Important:

Certain domain configuration and management tools are reserved for use with partitioned servers, extended systems and/or a Storage Area Network(SAN). Please contact your Bull Sales Representative for sales information.

Section I – Setting up Users and Configuring Data Disks

This section explains how to:

- Set up Server Users, on page 5-3
- Configure System and Data Disks, on page 5-4

Setting up Server Users

As Customer Administrator, you must set up user accounts and passwords to control access to the server.

The operating system pre-installed on the server provides standard security features for controlling access to applications and resources.

For further details, refer to the Microsoft Windows / Linux documentation, as applicable.

I Note:

You are advised to maintain a detailed record of authorized users.

Microsoft Windows

Default user access control is not pre–configured on systems running under Microsoft Windows.

You are advised to set up the Administrator account before proceeding to set up users and groups via the standard Microsoft Windows administration tools.

Linux

Two default users are pre-configured on systems running under Linux:

	User Name	Password
Administrator	root	root
User	linux	root

You are advised to change the default Administrator name and password before proceeding to set up users and groups via the standard Linux administration tools.

Configuring System and Data Disks

For optimum storage, security and performance, the server is delivered with one or two pre-configured disk racks.

New system and/or data disks can be created via the utility delivered with the storage sub-system.

Delivered storage sub-systems vary according to Customer requirements. See:

- Creating a New SCSI Disk Array and Array Partition, on page 5-4
- Creating New FC Logical System or Data Disk , on page 5-6

Creating a New SCSI Disk Array and Array Partition

The addition of data disks involves the creation of a new array and new array partitions (LUNs) via the embedded **Disk Array Administrator** software.

Note:

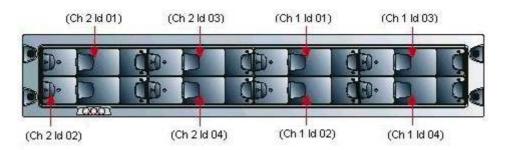
For further details about configuring system and data disks, refer to the appropriate Disk Subsystem documentation.

SCSI Disk Location

For guidance, local SCSI disks are located as shown in the following figures:

SJ-0812 SCSI JBOD / SR-0812 SCSI RAID Disk Racks

Optionally, the server may be delivered with one or two disk racks (one per domain). Each disk rack contains two RAID #1 system disks and one pool spare disk, and offers free slots for data disks.



	OS Disks (RAID #1)	Spare Disks (Pool)
SJ-0812 SCSI JBOD disk rack 1 Cell 0 (CSS Module_0, IOB_0)	Ch 2 ld 01 Ch 2 ld 02	Ch 2 ld 04
SJ-0812 SCSI JBOD disk rack 1 Cell 1 (CSS Module_0, IOB_1)	Ch 1 ld 01 Ch 1 ld 02	Ch 1 ld 04
SJ-0812 SCSI JBOD disk rack 2 Cell 2 (CSS Module_1, IOB_0)	Ch 2 ld 01 Ch 2 ld 02	Ch 2 ld 04
SJ-0812 SCSI JBOD disk rack 2 Cell 3 (CSS Module_1, IOB_1)	Ch 1 ld 01 Ch 1 ld 02	Ch 1 ld 04

Figure 129. SJ-0812 SCSI JBOD / SR-0812 SCSI RAID disk configuration

Creating a New SCSI Disk Array

1. From the Microsoft Windows desktop on the PAP unit, launch a HyperTerminal session with the following parameters:

Parameter	Value
Name	Disk Rack
Connect using	COM1 or COM2
Bits per second	115200
Data bits	8
Parity	None
Stop bits	1
Flow control	None
Emulation	ANSI

Table 32.HyperTerminal parameters

- 2. Press **CTRL–R** to refresh the screen and display the initial Disk Array Administrator screen.
- 3. Press Enter to display the System Menu.
- 4. Select Add an Array.
- 5. Enter the name of the Array: e.g. Data.
- 6. Enter the RAID level, number of disks and disk ID.
- 7. When prompted to **Create one partition now for entire Array?**, select **NO** to create a Multiple–Partition Array.
- 8. Select Array parameters.
- 9. Select the required number of free drives:

	Free Slots (population order)
SJ–0812 SCSI JBOD disk rack	N/A
SR–0812 SCSI RAID disk rack	Ch 2 ld 03 Ch 2 ld 04 Ch 1 ld 01 Ch 1 ld 02 Ch 1 ld 03

Table 33.SCSI data disk population order

10. Select Array Init options: Offline Initialization.

11. When prompted to confirm, enter YES.

Creating a New SCSI Array Partition

- 1. Select Array Menu.
- 2. Select Data Array and press Enter.
- 3. Select Add a Partition.
- 4. Enter the size of the disk partition, e.g. 10,000 MB.
- 5. Enter the name of the disk partition: e.g. **USER1**.
- 6. Enter a LUN number or select the suggested LUN number (from 0 to 63).
- 7. Repeat this procedure for each new disk partition.

The new Array and associated disk partitions are now configured for use.

Creating New FC Logical System or Data Disks

FDA 1x00 FC / FDA 2x00 FCDisk Rack

Optionally, the server may be delivered with one or two disk rack(s) each containing two RAID #1 system disks per domain and one pool spare disk, and offering ten free slots for data disks. Slots are numbered from 0 to14 (from left to right).

	OS Disks (RAID #1)	Spare Disk	
NovaScale 5xx0 Server			
FDA 1x00 FC disk rack or	PD0		
FDA 2x00 FC disk rack	PD1	PD14	
NovaScale 6080/6160 Server			
FDA 1x00 FC disk rack 1 controller #0 Cell_0, IOB_0	PD0 PD1	PD14	
FDA 1x00 FC disk rack 1 controller #1 Cell_1, IOB_1	PD2 PD3		
NovaScale 6320 Server			
FDA 1x00 FC disk rack 1 controller #0 Cell_0, CSS Module_0, IOB_0	PD0 PD1	PD14	
FDA 1x00 FC disk rack 1 controller #1 Cell_1, CSS Module_0, IOB_1	PD2 PD3		
FDA 1x00 FC disk rack 2 controller #0 Cell_2, CSS Module_1, IOB_0	PD0 PD1		
FDA 1x00 FC disk rack 2 controller #1 Cell_3, CSS Module_1, IOB_1	PD2 PD3	PD14	
FDA 2x00 FC disk rack 1 controller #0 Cell_0, CSS Module_0, IOB_0 Cell_1, CSS Module_0, IOB_1	PD0 PD1	PD14	
FDA 2x00 FC disk rack 1 controller #1 Cell_2, CSS Module_1, IOB_0 Cell_3, CSS Module_1, IOB_1	PD2 PD3	רטוא	

Table 34. FDA 1x00 FC / FDA 2x00 FC disk configuration

I Note:

For optimum storage, performance, and reliability, you are advised to use RAID level 1 for system disk configuration and RAID level 5 for data disk configuration.

To create a new logical system or data disk:

- 1. From the Microsoft Windows desktop on the PAP unit, launch iSM Client.
- 2. Follow the instructions on the screen.

I Note:

For further details about configuring system and data disks, refer to the appropriate Disk Subsystem documentation.

Section II – Using EFI Utilities

This section explains how to:

- Use the EFI Boot Manager, on page 5-8
- Use the EFI Shell, on page 5-10
- Use the EFI to Set up and Configure a Network, on page 5-14
- Use the EFI to Load FTP Server / Client, on page 5-15

Using the EFI Boot Manager

The EFI (Extensible Firmware Interface) Boot Manager allows you to control the server's booting environment. From the Boot Manager, you can choose to invoke the Extensible Firmware Interface (EFI) Shell or to go to the Boot Option Maintenance Menu.



Warning:

The EFI shell can only manage QWERTY keyboards. If you have an AZERTY keyboard, please refer to the AZERTY/QWERTY keyboard lookup table on page xxvii.

To enter the EFI Boot Manager:

- From the PAM Tree, click Domain Manager → Power ON to power up the required domain.
- 2. From the keyboard, press the **Control** key twice to display the KVM Switch Command Menu.
- 3. Select the required system channel port with the ↑↓ keys, according to configuration. See *KVM port configuration*, in the User's Guide.
- 4. Press Enter to activate the required system channel and exit the Command Mode.

I Note:

The system automatically boots on the first option in the list without user intervention after a timeout. To modify the timeout, use **Set Auto Boot Timeout** in the Boot Option Maintenance Menu.

5. From the Boot Manager Menu, select the EFI Shell option with the ↑↓ keys and press **Enter**.

EFI Boot Manager Options

EFI Shell

A simple, interactive environment that allows EFI device drivers to be loaded, EFI applications to be launched, and operating systems to be booted. The EFI shell also provides a set of basic commands used to manage files and the system environment variables. For more information on the EFI Shell, refer to Using the EFI Shell on page 5-10.

Boot Options

Files that you include as boot options. You add and delete boot options by using the Boot Maintenance Menu. Each boot option specifies an EFI executable with possible options. For information on the Boot Maintenance Menu options, refer to Table 35.

Boot Option Maintenance Menu

The EFI Boot Maintenance Manager allows the user to add boot options, delete boot options, launch an EFI application, and set the auto boot time out value.

If there are no boot options in the system (and no integrated shell), the Boot Maintenance Menu is presented. If boot options are available, then the set of available boot options is displayed, and the user can select one or choose to go to the Boot Maintenance Menu.

If the time out period is not zero, then the system will auto boot the first boot selection after the time out has expired. If the time out period is zero, then the EFI Boot Manager will wait for the user to select an option. Table 35 describes each menu item in the Boot Maintenance Menu.

Note:

You can use the $\rightarrow \leftarrow \uparrow \downarrow$ keys to scroll through the Boot Maintenance Menu.

Boot Option	Description
Boot from a File	This option searches all the EFI System Partitions in the system.
	For each partition it looks for an EFI directory. If the EFI directory is found, it looks in each of the subdirectories below EFI.
	In each of those subdirectories, it looks for the first file that is an execut- able EFI Application.
	Each of the EFI Applications that meet this criteria are automatically added as a possible boot option. In addition, legacy boot options for A: and C: are also added if those devices are present.
	This option allows the user to launch an application without adding it as a boot option.
	The EFI Boot Manager will search the root directories and the \EFI\TOOLS directories of all of the EFI System Partitions present in the system for the specified EFI Application.
Add a Boot Option	Allows the user to specify the name of the EFI Application to add as a boot option.
	The EFI Boot Manager searches the same partitions and directories as described in <i>Boot from a File</i> , until it finds an EFI Application with the specified name.
	This menu also allows the user to provide either ASCII or UNICODE ar- guments to the option that will be launched.
Delete Boot Options	Allows you to delete a specific boot option or all boot options. Highlight the option you want to delete and enter <d>. Enter <y> to confirm.</y></d>
Change Boot Order	Allows you to control the relative order in which the EFI Boot Manager attempts boot options. To change the boot order, highlight the boot option and enter <u> to move the item up one order, <d> to move the item down one order. For help on the control key sequences you need for this option, refer to the help menu.</d></u>
Manage Boot Next Setting	Allows you to select a boot option to use one time (the next boot opera- tion).
Set Auto Boot Timeout	Allows you to define the value in seconds that pass before the system automatically boots without user intervention. Setting this value to zero disables the timeout feature.
Cold Reset	Performs a platform-specific cold reset of the system. A cold reset traditionally means a full platform reset.
Exit	Returns control to the EFI Boot Manager main menu. Selecting this op- tion will display the active boot devices, including a possible integrated shell (if the implementation is so constructed).

Table 35. Boot Option Maintenance Menu

Using the EFI Shell

The EFI (Extensible Firmware Interface) Shell is a simple, interactive user interface that allows EFI device drivers to be loaded, EFI applications to be launched, and operating systems to be booted. In addition, the Shell provides a set of basic commands used to manage files and the system environment variables.

The EFI Shell supports command line interface and batch scripting.



The EFI shell can only manage QWERTY keyboards. If you have an AZERTY keyboard, please refer to the AZERTY/QWERTY keyboard lookup table on page xxvii.

Entering the EFI Shell

To enter the EFI Shell:

- From the PAM Tree, click **Domain Manager** → **Power ON** to power up the required domain.
- 2. From the keyboard, press the **Control** key twice to display the KVM Switch Command Menu.
- 3. Select the required system channel port with the ↑↓ keys, according to configuration. See *KVM port configuration*, in the User's Guide.
- 4. Press **Enter** to activate the required system channel and exit the Command Mode. After a few seconds, the Boot Manager menu is displayed.
- 5. From the Boot Manager Menu, select the EFI Shell option with the $\uparrow\downarrow$ keys and press **Enter**.

When the EFI Shell is invoked, it first looks for commands in the file **startup.nsh** on the execution path defined by the environment. There is no requirement for a startup file to exist. Once the startup file commands are completed, the Shell looks for commands from console input device.

Note:

The system automatically boots on the first option in the list without user intervention after a timeout. To modify timeout, use **Set Auto Boot Timeout** in the Boot Option Maintenance Menu.

EFI Shell Command Syntax

The EFI Shell implements a programming language that provides control over the execution of individual commands. When the Shell scans its input, it always treats certain characters specially: (#, >, %, *, ?, [, ^, space, and newline).

When a command contains a defined alias, the Shell replaces the alias with its definition (see alias command in this chapter). If the argument is prefixed with the ^ character, however, the argument is treated as a literal argument and alias processing is not performed.

I Note:

In interactive execution, the Shell performs variable substitution, then expands wildcards before the command is executed.

In batch script execution, the Shell performs argument substitution, then variable substitution, then expands wildcards before the command is executed.

Variable Substitution

Environment variables can be set and viewed through the use of the set command (see set command in this chapter). To access the value of an environment variable as an argument to a Shell command, delimit the name of the variable with the % character before and after the variable name; for example, %myvariable%.

The Shell maintains a special variable, named *lasterror*. The variable contains the return code of the most recently executed Shell command.

Wildcard Expansion

The *, ? and [characters can be used as wildcard characters in filename arguments to Shell commands.

If an argument contains one or more of these characters, the Shell processes the argument for *file meta-arguments* and expands the argument list to include all filenames matching the pattern.

These characters are part of patterns which represent file and directory names.

Character Sequence	Meaning
" * "	Matches zero or more characters in a file name
" ? "	Matches exactly one character of a file name
"[chars]"	Defines a set of characters; the pattern matches any single character in the set. Characters in the set are not separated. Ranges of characters can be specified by specifying the first character in a range, then the – character, then the last character in the range. Example: [a–zA–Z]

Table 36. Wildcard character expansion

Output Redirection

Output of EFI Shell commands can be redirected to files, according to the following syntax:

Command	Output Redirection
> unicode_output_file_pathname	standard output to a unicode file
>a ascii_output_file_pathname	standard output to an ascii file
1> unicode_output_file_pathname	standard output to a unicode file
1>a ascii_output_file_pathname	standard output to an ascii file
<pre>2> unicode_output_file_pathname</pre>	standard error to a unicode file
2>a ascii_output_file_pathname	standard error to an ascii file
>> unicode_output_file_pathname	standard output appended to a unicode file
>>a ascii_output_file_pathname	standard output appended to an ascii file
1>> unicode_output_file_pathname	standard output appended to a unicode file
1>>a ascii_output_file_pathname	standard output appended to an ascii file

Table 37.Output redirection syntax

The Shell will redirect standard output to a single file and standard error to a single file. Redirecting both standard output and standard error to the same file is allowed. Redirecting Standard output to more than one file on the same command is not supported. Similarly, redirecting to multiple files is not supported for standard error.

Quoting

Quotation marks in the EFI Shell are used for argument grouping. A quoted string is treated as a single argument to a command, and any whitespace characters included in the quoted string are just part of that single argument.

Quoting an environment variable does not have any effect on the de-referencing of that variable. Double quotation marks "" are used to denote strings. Single quotation marks are not treated specially by the Shell in any way. Empty strings are treated as valid command line arguments.

Executing Batch Scripts

The EFI Shell has the capability of executing commands from a file (batch script). EFI Shell batch script files are named using the *.nsh* extension. Batch script files can be either UNICODE or ASCII format files. EFI Shell script files are invoked by entering the filename at the command prompt, with or without the filename extension.

Up to nine (9) positional arguments are supported for batch scripts. Positional argument substitution is performed before the execution of each line in the script file. Positional arguments are denoted by **%n**, where n is a digit between 0 and 9. By convention, **%0** is the name of the script file currently being executed. In batch scripts, argument substitution is performed first, then variable substitution. Thus, for a variable containing **%2**, the variable will be replaced with the literal string **%2**, not the second argument on the command line. If no real argument is found to substitute for a positional argument, then the positional argument is ignored. Script file execution can be nested; that is, script files may be executed from within other script files. Recursion is allowed.

Output redirection is fully supported. Output redirection on a command in a script file causes the output for that command to be redirected. Output redirection on the invocation of a batch script causes the output for all commands executed from that batch script to be redirected to the file, with the output of each command appended to the end of the file.

By default, both the input and output for all commands executed from a batch script are echoed to the console. Display of commands read from a batch file can be suppressed via the echo -off command (see echo). If output for a command is redirected to a file, then that output is not displayed on the console. Note that commands executed from a batch script are not saved by the Shell for DOSkey history (up-arrow command recall).

Error Handling in Batch Scripts

By default, if an error is encountered during the execution of a command in a batch script, the script will continue to execute.

The *lasterror* Shell variable allows batch scripts to test the results of the most recently executed command using the *if* command. This variable is not an environment variable, but is a special variable maintained by the Shell for the lifetime of that instance of the Shell.

Comments in Script Files

Comments can be embedded in batch scripts. The **#** character on a line is used to denote that all characters on the same line and to the right of the **#** are to be ignored by the Shell. Comments are not echoed to the console.

EFI Shell Commands

Most Shell commands can be invoked from the EFI Shell prompt. However there are several commands that are only available for use from within batch script files.

I Note:

The "Batch–only" column indicates if the command is only available from within script files. The following sections provide more details on each of the individual commands. Command *help command_name* displays the details of the *command_name*.

Command	Batch	Description	
	only		
alias	No	Displays, creates, or deletes aliases in the EFI Shell	
attrib	No	Displays or changes the attributes of files or directories	
bcfg	No	Displays/modifies the driver/boot configuration	
break	No	Executes a break point	
cd	No	Displays or changes the current directory	
cls	No	Clears the standard output with an optional background color	
comp	No	Compares the contents of two files	
connect	No	Binds an EFI driver to a device and starts the driver	
ср	No	Copies one or more files/directories to another location	
date	No	Displays the current date or sets the date in the system	
dblk	No	Displays the contents of blocks from a block device	
devices	No	Displays the list of devices being managed by EFI drivers	
devtree	No	Displays the tree of devices that follow the EFI Driver Model	
dh	No	Displays the handles in the EFI environment	
disconnect	No	Disconnects one or more drivers from a device	
dmem	No	Displays the contents of memory	
dmpstore	No	Displays all NVRAM variables	
drivers	No	Displays the list of drivers that follow the EFI Driver Model	
drvcfg	No	Invokes the Driver Configuration Protocol	
drvdiag	No	Invokes the Driver Diagnostics Protocol	
echo	No	Displays messages or turns command echoing on or off	
edit	No	Edits an ASCII or UNICODE file in full screen.	
err	No	Displays or changes the error level	
exit	No	Exits the EFI Shell	
for/endfor	Yes	Executes commands for each item in a set of items	
goto	Yes	Makes batch file execution jump to another location	
guid	No	Displays all the GUIDs in the EFI environment	
help	No	Displays commands list or verbose help of a command	
hexedit	No	Edits with hex mode in full screen	
if/endif	Yes	Executes commands in specified conditions	
load	No	Loads EFI drivers	
loadbmp	No	Displays a Bitmap file onto the screen	
ls	No	Displays a list of files and subdirectories in a directory	
map	No	Displays or defines mappings	
memmap	No	Displays the memory map	
mkdir	No	Creates one or more directories	
mm	No	Displays or modifies MEM/IO/PCI	
mode	No	Displays or changes the mode of the console output device	
mount	No	Mounts a file system on a block device	
mv	No	Moves one or more files/directories to destination	
openInfo	No	Displays the protocols on a handle and the agents	
pause	No	Prints a message and suspends for keyboard input	
pci	No	Displays PCI devices or PCI function configuration space	
reconnect	No	Reconnects one or more drivers from a device	
reset	No	Resets the system	
rm	No	Deletes one or more files or directories	
set	No	Displays, creates, changes or deletes EFI environment variables	
stall	No	Stalls the processor for some microseconds	
time	No	Displays the current time or sets the time of the system	
type	No	Displays the contents of a file	
unload	No	Unloads a protocol image	
ver	No	Displays the version information	
vol	No	Displays volume information of the file system	

Table 38. List of EFI Shell Commands

EFI Network Setup and Configuration

The EFI (Extensible Firmware Interface) Utilities delivered with the system provide a complete set of TCP/IPv4 network stack and configuration tools. Ethernet adapters utilizing 6 bit UNDI option ROMs are supported.



Important:

To access this feature, please connect the Enterprise network to the embedded Ethernet board on the IOR of the domain master IO board. Intel PRO 1000T and 1000F adapters are not supported.

I Note:

These utilities are installed in the EFI partition of the system disk in the EFI\Tools directory. The list and respective manual pages for each utility can be found on the Bull NovaScale Server Resource CD–Rom.

Network stack configuration commands must be executed after booting to EFI Shell. To simplify network setup, these commands should be grouped, via an EFI batch script, to form a single one–line command.

Manual EFI Network Configuration

1. Load the TCP/IP protocol via the EFI load command.

Note:

As the **load** command does not use the search path to locate protocols, specify the path and the **.efi** extension.

```
fso:\efi\tools\tcpipv4.efi
```

2. Configure the network interfaces with the ifconfig command:

The simple form of the command is:

ifconfig <interface> inet <ip address> up

where *<ip address*> is the address assigned to the system. If the system is connected to a network that uses subnetting, a subnet mask would also need to be specified as follows:

ifconfig sni0 inet <ip address> netmask <netmask> up

where <netmask> is the network mask assigned to the network.

I Note:

The TCP/IP stack contains a *"lo0"* loopback interface which can be optionally be configured with the *"sni0"* Ethernet interface if a compatible UNDI Ethernet adapter is installed. Configuration is performed with the **ifconfig** command.

3. If multiple network or subnetwork networking is required, set a gateway address for the appropriate gateway(s) attached to the network, via the **route** command as follows:

route add <destination> <gateway ip address>

where <*destination*> specifies the target network or host and <*gateway ip address*> specifies the network gateway address responsible for routing data to the destination.

If default is used for < destination>, a default route will be set.

Example Network Configuration Batch File

An example network configuration batch file named **NetConf.nsh** is installed in the EFI directory of the EFI Service Partition.

This file loads the TCP/IP, configures the Ethernet interface to the IP address given as first argument to this file, configures the optional second argument as the gateway, and loads the FTP Server (daemon).

```
echo -off
if %1empty == empty then
echo usage netconf {local ip-addr} [router ip addr]
goto End
endif
load fs0:\efi\tools\tcpipv4.efi
ifconfig sni0 %1 netmask 255.255.255.0
if not %2empty == empty then
route add default %2
endif
load fs0:\EFI\Tools\ftpd.efi
:End
```

Note:

The IP addresses and netmask indicated in this file and in the following example are only examples and must be modified to reflect site network configuration:

```
fs0:\> Netconf 129.182.189.3 129.182.189.1
129.182.189.3 is the <ip address>
```

```
129.182.189.1 is the <gateway ip address>
```

File Transfer Protocol (FTP)

An FTP Client and an FTP Server are provided with the EFI Utilities.

- 1. Configure the network. See Manual Network Configuration.
- 2. Load the FTP Server via the EFI load command.
- 3. Load the FTP Client via the EFI **ftp** command. This Client supports most ftp directives (open, get, put, ...). Use the **help** directive if you need help.

I Note:

As the **load** command does not use the search path to locate protocols, specify the path if it is not in the current working directory and the **.efi** extension.

load fs0:\efi\tools\ftpd.efi

The FTP Server is now available for use and accepts anonymous connections (one at a time).



Important:

Once the EFI drivers for the TCP/IP, the FTP Server or FTP Client are loaded, you cannot load an Operating System.

To load an Operating System, reset the domain and return to Boot Manager.

Section III – Customizing PAM Software

This section explains how to:

- Set up PAP Unit Users, on page 5-17
- Modify Customer Information, on page 5-19
- Configure Autocalls, on page 5-20
- Set Thermal Units, on page 5-22
- Deploy a New PAM Release, on page 5-23
- Activate a PAM Version, on page 5-24
- Back up and Restore PAM Configuration Files, on page 5-26

Setting up PAP Unit Users

As Customer Administrator, you must set up user accounts and passwords to control access to the PAP unit.

The Microsoft Windows operating system pre–installed on the PAP unit provides standard security features for controlling access to applications and resources. PAM software security is based on Windows user management and you are advised to give Windows administrator rights to at least one member of the PAP Customer Administrator user group. For further details about user management, refer to the Microsoft Windows documentation on the Bull NovaScale Server System Resource CD.

Note:

You are advised to change the temporary Administrator password (**administrator**) used for setup purposes and to maintain a detailed record of authorized users.

Predefined PAP User Groups

For optimum security and flexibility, the Microsoft Windows software environment is delivered with two predefined Customer user groups:

Pap_Customer_Administrators Group (CA)

This group is designed for customer representatives responsible for the overall management, configuration, and operation of the system. Members of the Customer Administrator group are allowed to configure and administrate the server and have full access to the PAM **Domain Manager**, **Hardware Monitor**, **History Manager** and **Configuration Tasks** menus, as shown in Table 39.

Pap_Customer_Operators (CO)

This group is designed for customer representatives responsible for the daily operation of the system. Members of the Customer Operator group are allowed to operate the server and have full access to the **Domain Manager** menu and partial access to the **History Manager** menu, as shown in Table 39.

I Notes:

- Group membership also conditions which Event Messages a user will receive via the PAM Web interface. See *Setting up Event Subscriptions*, on page 5-115.
- The predefined Customer user groups have been designed to suit the needs of most Administrator and Operators. Contact your Customer Service Engineer if you require a customized user group.



Warning:

The two predefined Support user groups:

- Pap_Support_Administrators
- Pap_Support_Operators

are reserved EXCLUSIVELY for authorized Customer Service Engineers in charge of monitoring, servicing, and upgrading the system.

PAM Tools	Associated Actions	CA	СО
	Load/delete domains	Х	Х
	Power on/off/reset domains	Х	Х
	View/modify domain settings	Х	Х
	View domain status	Х	Х
	View domain resources	Х	Х
Domain Manager	View BIOS info	Х	Х
	View BIOS version	Х	Х
	View loaded BIOS image	Х	Х
	View power logs	Х	Х
	View request logs	Х	Х
	Request a system dump	Х	Х
	View hardware functional/presence status	Х	
	View detailed hardware status information	Х	
Hardware Monitor	Use the hardware Search engine	Х	
	Exclude/include hardware components	Х	
	View current PAM Web site user information	Х	
	View PAM version information	Х	
	View system history files and messages	Х	
	Manually archive system history files	Х	
History Managar	View/delete system history archives	Х	
History Manager	View user history files	Х	Х
	Manually archive user history files	Х	Х
	View/delete user history archives	Х	Х
	View/modify customer information	Х	
	Modify the system history automatic archiving policy	Х	
	Create/modify/delete domain schemes and identities	Х	
	Modify domain schemes and identities	Х	
Configuration Tasks	Create/delete user histories	Х	
	Modify user history automatic archiving policy	Х	
	Customize the event messaging system	Х	
	View/ modify PAM parameters	Х	
	Display/modify autocall parameters	Х	
	View/acknowledge WEB event messages	Х	Х
Status Pane	Check system functional status	х	х
	Check CSS availability	х	х

Table 39. User access to PAM features

CA = Customer Administrator CO = Customer Operator

Modifying Customer Information

Customer information is configured during the initial installation procedure, via the PAM configuration setup Wizard. This information is used by PAM software for the **PAM Tree** display and to complete Intervention Reports.

As Customer Administrator, you may modify this information.

To modify Customer information:

- 1. From the PAM Tree, click **Configuration Tasks** → **Customer Information**. The **Customer Information** configuration page opens.
- 2. Enter the new information and click Save to confirm changes.

NovaScale	Customer Information	Bull 💮
] 🔛 Save		(?) Help
Site name:		
Customer name:		_
Site number:		
Site engineer name:		
Site engineer phone n	umber:	
Town:		
Country code:		
		Anti-Anti-Anti-Anti-Anti-Anti-Anti-Anti-

Figure 130. Customer Information configuration page

Note:

The value entered in the **Site name** field will be used for the PAM tree root node.

Configuring Autocalls

The **Autocall** feature is part of the BULL Remote Maintenance contract. It is used to automatically route system events to the Remote Maintenance Center. Full details are given in the BULL *Remote Maintenance Guide*.

If your maintenance contract includes the Autocall feature, configure Autocall parameters as follows:

3. Click Configuration Tasks \rightarrow Autocalls. The Autocalls configuration page opens.

NovaScale	Autocalls Channel Settings	Bull 💮
🔚 Save 🛛 Test Autocall		? Help
Enable Autocalls Send HeartBeat Per Send Network Identification Send IP address	iod: 1 Day(s)	<u></u>
┌ ⓒ Local dispatch mode		
Local Target directory:	c:\gts\session	
C FTP dispatch mode Server name:	127.0.0.1	
Server port:	21	
Target directory:	/autocall	
Login:		
Password:		
Use modem connection		
Connection name:		
User name:		
Password:		

Figure 131. Autocalls Channel Settings control pane

- 4. Select the Enable Autocalls checkbox.
- 5. Select the **Send Heartbeat** checkbox and enter a value "in days" for the autocall channel control in the **Period** box. Recommended value = 1.
- 6. Select the autocall dispatch mode :
 - Local dispatch mode (default mode) sends autocalls to the local target directory indicated under Local Settings,
 - FTP dispatch mode sends autocalls to the server indicated under FTP Settings.
- 7. If **Local dispatch mode** (default mode) is selected, complete the **Local Settings** field with the following information:

Field	Explanation	Value
Local target directory	Default GTS directory used to store autocalls.	c:\gts\session

8. If **FTP dispatch mode** is selected, complete the **FTP Settings** fields with the following information:

Field	Explanation	Value
Server name	Remote Maintenance Center server IP address	127.0.0.1
Server port	Default server port	21
Target directory	Default server directory	/autocall
Login	Declared authorized user name	Х
Password	Declared authorized user password	Х

- 9. If a modem connection is to be used:
 - a. From the PAP Unit Microsoft Windows desktop, configure the dial–up connection (Control Panel \rightarrow Phone and Modem Options).
 - b. From the PAM Autocalls Control Pane, select the Use modem connection checkbox.
 - c. Use the **Connection name** drop–down menu to select the required modem connection.
 - d. Complete the **User name** and **Password** fields with the declared authorized user name and user password.

Setting Thermal Units

By default, PAM software displays thermal measurements in degrees Celsius. As Customer Administrator, you may change the default setting to degrees Fahrenheit.

To change PAM thermal units:

- 1. Click Configuration Tasks \rightarrow PAM. The PAM Configuration control pane opens.
- 2. Click the **Celsius** or **Fahrenheit** radio button, as required.
- 3. Click **Save**. A green icon appears in the top left corner of the control pane to confirm the change.

NovaSca	le		PAM Configuration	Bull 🔮
Thermal unit	د Celsius	C Fahrenheit		
		1.50		

Figure 132. PAM configuration control pane

Deploying a New PAM Release

As Customer Administrator, you can deploy a new PAM release by running the new PAM *Installation package x.y.z. msi* (*x.y.z* being the PAM version e.g. 7.15.0 2.1.9) file.

To install a new PAM Release:

- 1. From the local PAP unit console, power down all server domains and close the current PAM session.
- 2. From the default *PAM Installation* directory, double click the **.msi file** to launch the *PAM Installation InstallShield Wizard*.
- 3. Select **Complete** to install all program features and to accept the default path for the installation folder:

<**WinDrive>:\Program Files\BULL\PAM\installation**<*Release Version>* (e.g. d:\Program Files\BULL\PAM\installation\7.15.0 2.1.9).

or, select **Custom** to select program features and to define a path for the installation folder.

PAM Installation package 6.1.0 - InstallShield	Wizard 2
Custom Setup Select the program features you want installed.	
Click on an icon in the list below to change how a feature	
PAM Installation Package	Feature Description Copy on disk all the MSI Files that compose PAM and the PAM Activation utility This feature requires 13MB on your hard drive.
 Install to: D:\Program Files\BULL\PAM\installation\6.1.0\	Change
istallShieldSpace < Back	Next > Cancel

Figure 133. PAM Installation InstallShield Wizard

Note:

This path is the repository for activation files. NEVER delete this folder after activation as it is required to repair and re-activate the release.

- 4. Click Install to begin setup.
- 5. Select the Launch PAM Activation utility checkbox and click Finish. The PAM Activation utility is automatically launched.

The **PAM Activation** icon is installed on the PAP unit desktop and the **Platform Administration and Maintenance** program group, giving access to the **PAM Activation** and **PAP Configuration** executable files, is installed in the **Program Files** directory.

Activating a PAM Version

The *PAM InstallShield Wizard* automatically creates a shortcut to the **PAM Activation** utility on the PAP unit desktop that can be used at any time to activate an installed PAM Version.

Image: Note:

A previous PAM Version can be re-activated at any time, in the event of a problem with the current release.

To activate / re-activate a PAM Version:

- 1. From the local PAP unit console, power down all server domains and close the current PAM session.
- 2. From the *PAM Activation* utility on the Microsoft Windows desktop, select the required PAM Version and click **Activate** to launch the *PAM Activation InstallShield Wizard*.
- 3. Select **Complete** to accept the default paths for the PAM Release and PAM Site Data folders:

The default PAM Release directory for all the files delivered as part of PAM software is:

<*WinDrive*>:\Program Files\BULL\PAM\<*Release Version*> (e.g. d:\Program Files\BULL\PAM\7.15.0).

The default PAM **Site Data** directory for all the files produced by PAM software (history files, configuration files) concerning Customer site definition and activity is:

<*WinDrive*>:\Program Files\BULL\PAM\PAMSiteData\<*DataCompatibilityRelease*> (e.g. d:\Program Files\BULL\PAM\PAMSiteData\1).

🖗 Platform Administration and Maintenance - Instal	Shield Wizard 🛛 🔀
Custom Setup Select the program features you want installed.	
Click on an icon in the list below to change how a feature is in	istalled.
Platform Administration and Maintenance	Feature Description Platform Administration and Maintenance software. This feature requires 47MB on your hard drive.
Install to:	
D:\Program Files\BULL\PAM\6.1.0\	<u>Change</u>
PAM SiteData Folder:	
D:\Program Files\BULL\PAM\PAMSiteData\1	<u>C</u> hange
InstallShield	
Help Space < Space	Next > Cancel

Figure 134. PAM Activation InstallShield Wizard



Important:

PAM releases use the same data directory to ensure configuration consistency. Before activating / re–activating a PAM Version, ensure that the <Data Compatibility Release> level of deployed releases is compatible.

If it is NOT compatible, PAM configuration options (e.g. Event subscription options, Domain Schemes and Identities, ...) may be lost.

- 4. Click Install to begin activation.
- 5. Select the **Launch PAP Configuration** utility checkbox if you want to configure or reconfigure PAP unit settings. Otherwise, click **OK** to complete activation.
- From the local PAP unit console, right click the Microsoft Internet Explorer icon on the desktop and click Properties → General → Delete Files to delete all the files in the Temporary Internet Folder.
- 7. Launch a new PAM session.



Important:

Notify all authorized users, connecting to PAM from a remote console, that a new PAM Version has been activated and request them to:

- a. Close their current PAM session.
- b. Delete all the files in their Temporary Internet Folder.
- c. Launch a new PAM session.

Backing Up and Restoring PAM Configuration Files

As Customer Administrator, you are advised to regularly save PAM configuration data to a removable media or to a network directory so that it can be rapidly restored in the event of PAP unit failure.

PAM software can be deployed on any standard PC running the appropriate version of Microsoft Windows and you can restore your configuration data to rebuild your working environment.

To ensure carefree, reliable and regular configuration data backup, the Bull NovaScale Server Resource CD contains two scripts, **PamBackupData.js** and **PamRestoreData.js**, that can be scheduled to run via the Microsoft Windows **Task Scheduler** to save and restore PAM configuration data.

I Notes:

 PAM configuration data is automatically saved to the default PAM Site Data directory on the PAP unit:

< WinDrive>:\Program Files\BULL\PAM\PAMSiteData\< DataCompatibilityRelease>

• The **PamBackupData.js** and **PamRestoreData.js** scripts are stored in the PAM Site Data directory on the PAP unit:

< WinDrive>:\Program Files\BULL\PAM\PAMSiteData\ReleaseData\Utilities

Backing Up PAM Configuration Files

To create a Microsoft Windows automatic backup task:

- 1. Select or create the local or network directory to be used for saving configuration data, e.g. *(MyPamBackupDirectory)*.
- 2. Create a local directory for the **PamBackupData.js** and **PamRestoreData.js** script files, e.g. *<MyPamBackupTools>*.
- 3. Copy the **PamBackupData.js** and **PamRestoreData.js** script files into the *<MyPamBackupTools>* directory.
- 4. Create a Text File and enter the following command line:

Cscript PamBackupData.js < MyPamBackupDirectory>

- 5. Save the Text File as a batch file with a **.BAT** extension, e.g. <*MyPamBackupCommand*>.bat.
- Click Control Panel → Scheduled Tasks → Add Scheduled Task to open the Task Scheduler wizard and follow the instructions. PAM configuration data will be automatically saved at the interval indicated in the wizard.

Restoring PAM Configuration Data



Warning:

The same PAM software release must be deployed on the PAP unit and on the backup PC to allow data restoration. See *Deploying a New PAM Release*, on page 5-23 and *Activating a PAM Version*, on page 5-24. PAM releases use the same data directory to ensure configuration consistency.

Before activating / re-activating a PAM Version, ensure that the <DataCompatibilityRelease> level of deployed releases is compatible.

To restore PAM configuration data:

 From the Microsoft Windows desktop, open a command window. Browse to the *AyPamBackupTools>* directory containing the script files and enter the following command line:

Cscript PamRestoreBackupData.js < MyPamBackupDirectory>

Saved PAM configuration data is restored.

Section IV – Configuring Domains



Important:

This section describes domain configuration and management tools that are reserved for use with partitioned servers and extended systems. Please contact your Bull Sales Representative for sales information.

This section explains how to:

- Partition your Server, on page 5-29
- Assess Configuration Requirements, on page 5-31
- Manage Domain Configuration Scheme, on page 5-33
- Update Test Schemes, on page 5-46
- Create, Edit, Copy, Delete a Domain Identity, on page 5-47
- Manage LUNs (Servers Not Connected to a SAN), on page 5-51
- Manage LUNs (Servers Connected to a SAN), on page 5-58
- Check and Update Fibre Channel HBA World Wide Names, on page 5-60
- Limit Access to Hardware Resources, on page 5-62
- Create a Mono–Domain Scheme using all Server Resources, on page 5-64
- Create a Mono–Domain Scheme using a Part of Server Resources, on page 5-75
- Create a Multi–Domain Scheme using all Server Resources, on page 5-86
- Create a Multi–Domain Scheme using a Part of Server Resources, on page 5-97
- Configure and Manage Extended Systems, on page 5-108
- Prepare a Scheme, Domain Identity, and Hardware Resources Checklist, on page 5-109

Partitioning your Server

Bull NovaScale Servers are designed around a flexible, cell–based, midplane architecture allowing dynamic partitioning into physically independent domains. A domain is a coherent set of hardware and software resources managed by a single Operating System instance.

The NovaScale 6080/6160 Server is designed to operate as one or two hardware–independent SMP systems, or domains.

The NovaScale 6320 Server is designed to operate as one, two, three or four hardware–independent SMP systems, or domains.

I Note:

Server components and configuration may differ according to site requirements. At least one IOB and one QBB are required for each server domain.

Partitioning allows you to optimize your server to:

- meet variations in workload peak / off-peak periods,
- · allow different time and date settings,
- · use the same environment for tests and production,
- · carry out software tests prior to deployment / upgrades,
- reduce downtime for servicing or re-configuration.

PAM software provides you with all the tools and features required to partition and manage your server as independent SMP systems. For easy configuration and optimum use of the physical and logical resources required for simultaneous operation, domains are defined via the **Domain Configuration Scheme** wizard. From the PAM tree, expand the **Configuration Tasks** and **Domains** nodes to display domain configuration options.

NO	vaScale		Scheme	5	Bull	1.1
<u>)</u> Me	w 🥮 Edit 🖻 Copy 🐰	<u>D</u> elete <u>Q</u> Rename	🛛 💐 <u>T</u> est Schem	nes Update	2	Help
2222	Schemes		A	uthor	Local Date & Time	
MyBusi	inessScheme		FRCLS5778\CA	í.	03/25/04 13:39:34	-
WyNew	/Scheme		FRCLS5778\CA	ř.	03/29/04 15:00:17	
vlyOffp	eakProdScheme		FRCLS5778\CA		03/25/04 17:24:13	
vlyOpe	rationsScheme		FRCLS5778\CA	8	03/04/04 18:12:23	
MyProc	I_PayrollScheme		FRCLS5778\CA	i	03/25/04 17:32:28	
WYSEF	RVER		FRCLS5778\CA	ί.	03/29/04 15:07:05	
-	NovaScale	43474	Idei	ntities		19931000
ſ	NovaScale	opy <u>X D</u> elete	Version	In use		1991-1002
ſ	<mark>]</mark> New ₹Edit ௸Ωo	43474			Description	1991-1002
ſ	<mark>]</mark> New ₹Edit ௸Ωo	opy <u>X D</u> elete Operating				1
	Identities	opy <u>X D</u> elete Operating System		In use	Description	1
ielec	New ♥ Edit ₽⊇ Qa Identities	ppy <u>& D</u> elete Operating System WINDOWS_64		In use Yes	Description	Bull
elet	Identities	Operating System WINDOWS_64 WINDOWS_64		In use Yes No	Description	oath: E
	Identities	Operating System WINDOWS_64 WINDOWS_64 LINUX		In use Yes No No	Description Time zone: Central America, Boot p	oath: I

Figure 135. Schemes and Identites panes

A **Domain Configuration Scheme** is used to define and manage a set of domains that can be active simultaneously. The **Schemes** control pane allows you to create, edit, copy, delete, and rename domain configuration schemes and update default test schemes.

A **Domain Identity** is used to define and manage domain context information. The **Identities** control pane allows you to create, edit, copy, and delete domain identities.

The server is delivered with a pre–configured domain configuration scheme called **MyOperationsScheme**, allowing you to simultaneously manage and administer all server resources. However, as Customer Administrator, you may want to create other schemes and identities to suit your working environment.

Before proceeding to create a new Scheme and/or new Domain Identities, you are advised to assess your configuration requirements. See *Assessing Configuration Requirements*, on page 5-31.

Assessing Configuration Requirements

At least one IOB and one QBB are required for each server domain.

You can use the following checklist to help you make an accurate plan of how you want to partition and manage your system. For easy planning, you can print a copy of the Scheme, Domain Identity, and Resources checklist templates provided on page 5-109.

	Scheme Checklist
Name	 What name do I want to use for my Scheme? Examples: MyFullConfigScheme MyPartConfigScheme MyNightScheme MyDayScheme MyTest_ProductionScheme
Description	 How can I describe my Scheme to reflect its scope? Examples: Central Subsystems included Resources used Domain Identities used
Central Subsystem(s)	Which Central Subsystem(s) do I want to use?
Number of Domains	How many domains do I need?
Domain Size	How many cells do I want to assign to each domain?
EFI Boot LUNs	Which EFI boot LUN do I want to use for each domain?
	Do I need to create a new EFI boot LUN from the disk subsystem utility before defining my new scheme?
Data LUNs *	Which data LUNs do I want to assign to each domain?
	Do I need to create a new data LUN from the disk subsystem utility before defining my new scheme?
Fibre Channel Hosts *	Which fibre channel host do I want to use to access LUNs?
I/O Resource Location	Which cells host the I/O resources I want to use?
Resource Access	Do I want to limit access to certain hardware resources?

* Reserved for systems connected to a Storage Area Network (SAN).

Table 40. Domain configuration assessment criteria – 1

	Domain Identity Checklist
Name	 What name do I want to use for my Domain Identity to reflect the tasks/jobs it will run? Examples: MyDataMiningIdentity MyDataBaseIdentity MyProductionIdentity MyTestIdentity
Description	 How can I describe my Domain Identity to reflect its use? Examples: OS and applications Time zone Boot path IP address Network name URL Production / test conditions
Operating System	Which OS do I want to run on this domain? Does this OS support assigned hardware (CPUs, DIMMs)?
Domain Network Name	Which network name will be used to identify this domain?
Domain IP Address	Which IP address will be used to reach this domain?
Domain URL	Which URL can be used to reach my domain Web site (if any)?
Multithreading Mode	Do the CPUs used by this domain support the multithreading mode? Do I want to enable the multithreading mode for this domain?
High Memory IO Space	Do I need more than 4GB PCI gap space for the PCI boards used by this domain?
Machine Check	Do I want this domain to halt or to automatically reset if a ma- chine check error occurs?
Licensing number	Do I intend to install an application protected by a system serial number on this domain? Do I want to substitute the physical system serial number with the logical licensing number for optimum flexibility?
Force Halt on Machine Check Reset	Has my Customer Service Engineer requested me to check this box to troubleshoot my server?

Table 41. Domain configuration assessment criteria – 2

Managing Domain Configuration Schemes

What You Can Do

From the Schemes Control pane, you can:

- Create a domain configuration scheme
- Edit a domain configuration scheme
- Copy a domain configuration scheme
- Delete a domain configuration scheme
- Rename a domain configuration scheme

Creating a Domain Configuration Scheme

Pre-requisites

- Required EFI LUNs and Data LUNs must be created from the utility delivered with the storage subsystem.
 - See Configuring System and Data Disks, on page 5-4.
- SAN LUN and/or Local LUN lists must be updated from the Logical Units page. See Updating SAN LUNs, on page 5-53 and/or Updating Local LUNs, on page 5-54 and on page 5-59.
- SAN Fibre Channel HBA World Wide Name (WWN) parameters must be up-to-date. See *Checking and Updating Fibre Channel HBA World Wide Names*, on page 5-60.
- Domain Identities can either be created via the Domain Scheme wizard or, independently, via the **Identities** configuration page. See *Creating a Domain Identity*, on page 5-48.
- At least one IOB and one QBB are required for each server domain.

Steps

- Assess requirements
- Create EFI and/or Data LUNs
- Update the LUN lists
- Update Fibre Channel World Wide Name (WWN) parameters*
- Select the Central Subsystem(s)
- Define the number of domains

For each domain in the scheme:

- Select / create a domain identity
- Select an EFI LUN
- Select Data LUNs*
- Link LUNs to the Fibre Channel Host*
- · Lock access to hardware resources
- * Reserved for systems connected to a Storage Area Network (SAN)

To create a domain configuration scheme:

- 1. Assess your configuration requirements. See *Assessing Configuration Requirements*, on page 5-31.
- 2. If required:
 - Create EFI and/or Data LUNs from the utility delivered with the storage subsystem.
 You are advised to use RAID level 1 for EFI LUNs and RAID level 5 for Data LUNs.
 - Update the SAN LUN and/or Local LUN lists from the Logical Units page. See Updating SAN LUNs, on page 5-53 and/or Updating Local LUNs, on page 5-54 and on page 5-59.
 - Update Fibre Channel HBA World Wide Name (WWN) parameters.
- 3. Click Configuration Tasks \rightarrow Domains \rightarrow Schemes in the PAM tree to open the Schemes control pane.

NovaScale	Schemes	Bull	
📄 New 👒 Edit 🖻 Copy 🐰 Delete 📲 Renam	e 📋 🌂 <u>T</u> est Schemes Update	2	Help
Schemes	Author	Local Date & Time	
MyBusinessScheme	FRCLS5778\CA	03/25/04 13:39:34	
MyOffpeakProdScheme	FRCLS5778\CA	03/25/04 17:24:13	
MyOperationsScheme	FRCLS5778\CA	03/04/04 18:12:23	
MyProd_PayrollScheme	FRCLS5778\CA	03/25/04 17:32:28	
MYSERVER	FRCLS5778\CA	03/26/04 11:43:33	
Selected cohome description:			Y
Selected scheme description:			-

Figure 136. Schemes control pane

4. Click **New** in the toolbar to open the **Scheme Management** dialog.

cheme Name :		Central Subsystem			
escription:	A	Add	Remove		Modity
	×	Domains			
		Bemove Identity	EFILUNS Data I	UNs Lin <u>k</u>	Lock Hardware
Welcome to the Domain Scherr	ne wizard.				
Your server Central Subsystem	n is designed around a fle	wible cell-based archite	cture allowing dynamic	partitioning into u	in to four
physically independent domain			etare ane mig aj name	partierinig nite e	
A domain is a set of hardware a System instance.	and software resources, s	spanning one or more C	entral Subsystem cells	, managed by a si	ngle Operating
A Domain Scheme is the templ	ate used to define and m	anage a set of domains	that can be active simi	iltaneously.	
Complete the Scheme Name a	nd optionaly Description f	ields and click Add to be	eain domain scheme cr	eation.	
Indicates Required Field.					
Indicates Required Field.		Cancel		Help	
				Help	
		<u>C</u> ancel		Help	

Central Subsystem				
Scheme Name	Name used to identify the scheme.			
Description	Brief description of scheme configuration.			
Add	Select the Central Subsystem used in the scheme.			
Remove	Remove a Central Subsystem from the scheme.			
Modify	Select the number of hardware partitions in the scheme.			
	Domains			
Remove	Remove the selected domain from the scheme.			
Identity	Select a domain identity.			
EFI LUNs	Select an EFI Boot LUN.			
Data LUNs *	Assign Data LUNs to the domain.			
Link *	Define the fibre channel host to be used to access LUNs.			
Lock Hardware	Limit access to certain hardware resources.			

* Reserved for systems connected to a Storage Area Network (SAN)

Figure 137. Scheme Management dialog

- 5. Complete the **Scheme Name** and **Description** fields, as required. See *Assessing Configuration Requirements*, on page 5-31.
- Click Central Subsystem → Add to select the Central Subsystem to be used by the domain configuration scheme. The Central Subsystem Configuration dialog opens.

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Scheme Management with S	5AN Dialogue de page Web						X
Scheme Name : MyNewSc	heme 🔫	Central Sub	system	<u>.</u>		~	
Description:			Add		Rem	iove	Madify
	🚰 Add and Configure Central Sub			e page Web			×
	Select the Central Subsystem			r r		1.0	Link Lock Hardware
	Central Subsystem Name	Cells	CPU	Memory	Status	- 1070	
	MYSERVER	4	32	0	PRESENT		
Welcome to the Domain	MYSERVER_01	2	16	0	PRESENT		
	MYSERVER_02	4	32	0	PRESENT		
Your server Central Sub physically independent of						×	g into up to four
physically independence	Each Central Subsystem can be	divided into	up to 2	partitions.			
A domain is a set of hard							by a single Operating
System instance.	1- Use the dropdown list to selec	t the require	d numbe	er of partitio	ns.		
A Domain Scheme is the	Number of Partitions: 2	•					
Complete the Scheme N	2- Select a configuration and clic	k OK to con	tinue.				
	MODULE_1 MODULE_0						
Rundicates Required Field.	Partition 1 CELL_0 Total CPU 8 8 Memory (MB) 0 0	Partition 2 CELL_1 Total 8 8 0 0					
Save	QK	Ca	ncel		Hel)	q

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Scheme Management with 9	5AN Dialogue de page Web			×
Scheme Name : MyNewSc	heme 🔻 [Central Subsystem		1
Description:		Add	Remove	Modify
	Add and Configure Central Subs Select the Central Subsystem			×
	Central Subsystem Name	Cells CPU Memory	Status	lin <u>k</u> L <u>o</u> ck Hardware
	MYSERVER	4 32 0	PRESENT	
Welcome to the Domain	Myserver_01	2 16 0	PRESENT	
welcome to the Domain	MYSERVER_02	4 32 0	PRESENT	
Your server Central Sub		hhhhhhhhh_	*	g into up to four
physically independent of	Each Central Subsystem can be	divided into up to 4 partitions.		
A domain is a set of hard				by a single Operating
System instance.	1- Use the dropdown list to select	t the required number of partitio	ns.	
A Domain Scheme is the	Number of Partitions: 2	-		
Complete the Scheme N	2- Select a configuration and clic	k OK to continue.		
			2 2 2	
		222		
	Partition	n 1 Partition 2		
	CELL_0 CELL_1	CELL_2 Total CELL_3 Total		
	CPU 8 8	8 24 8 8		
	Memory (MB) 0 0	0 0 0 0		
Required Field.				
Save	OK	Cancel	Help	
	<u></u>			

Figure 138. Scheme Creation and Central Subsystem Configuration dialogs

- 7. Select a Central Subsystem and use the **Number of Parts** dropdown list to select the required number of hardware partitions (**2** in the examples).
- 8. Select the required partition configuration and click **OK** to return to the **Scheme Management** dialog.

Status icons are red because **Domain Identities** and **EFI LUNs** are required to complete domain configuration.

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Scheme Mana	gement with	i SAN Dialogue de pag	je Web		
cheme Name :	MyNewSc	heme	👼 Central Subsystem		
escription:	-		Add	Remove	Modify
			Domains		
			Remove Identity	EFILUNS	Lock Hardwar
			ns. A Domain must have an Identity	and an EFI Boot LUN.	
		Iso include one or more		Ibre Obennel Hest shared iste an	a and black
omain's PCI sl		o the SAN (Storage Are	ea Network), it must be linked to a F	ibre Channel Host plugged into oni	e or the
			the Domain Identity field or select a field or select a domain and click t		ton.
			or select a domain and click the Da		
o define links l	oetween fibe	er channel hosts and lur	ns connected through the SAN, seli	ect a domain and click the Link but	
o temporarily e	exclude som	e hardware component	ts from a domain, select the domain	and click the Lock Hardware butto	n.
CellBlocks	D	Domain Identities	EFILUNS	Data LUNs	LS
MYSERVER	1			<< No Data LUNs >>	
	2			<< No Data LUNs >>	
2 1					
Concerned and Concerned and					
					2
Indicates Rec	uired Field.				
	Save		Cancel	Help	
	2000		(gancer	Цеф	

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		with SAN Dialogue	de page Web				
Scheme Name :	MyNev	vScheme		Central Subsystem			
Description:			~	Add	Remove	<u>M</u>	odify
			~	Domains			
				Remove Identity	EFILUNS Data LUNS	Lin <u>k</u>	ock Hardware
					ty and an EFI Boot LUN.		
		ay also include one o			Fibre Channel Host plugged	into one of the	
Domain's PCI sl		ed to the SAN (Storaj	je Area Netwo	rk), it must be linked to a	Fibre Channel Host plugged	into one or the	
				ain Identity field or selec select a domain and clic	t a domain and click the Ident	ities button.	
				t a domain and click the			
					elect a domain and click the l		
To temporaniy i	exclude s	some naroware comp	orients from a	domain, select the doma	ain and click the Lock Hardwa	re putton.	
CellBlocks	D	Domain Identiti			É avec a series		S
CONDIVERS		Domain idenuu	es	EFILUNS	Data LUNs	i L	
MYSERVER	1	Domain idendu	es	EFILUNS	Contraction Contractic Con		
	1			EFILUNS			
MYSERVER	1	Domain Identiti		EFILUNS	<< No Data LUNs >>		
	1	Domain Idendu		EFILUNS	<< No Data LUNs >>		
MYSERVER	1	Doman kerku		EH LUNS	<< No Data LUNs >>		
MYSERVER	1	Domain Repair		EHLUNS	<< No Data LUNs >>		
MYSERVER	1			EHLUNS	<< No Data LUNs >>		
MYSERVER	1	Uginam roenur		EHLUNS	<< No Data LUNs >>		
MYSERVER	1	Ugi hain idenuu		EFILUNS	<< No Data LUNs >>		
MYSERVER	1			EHLUNS	<< No Data LUNs >>		
MYSERVER	1			EHLUNS	<< No Data LUNs >>		
MYSERVER	uired Fi	eld			<< No Data LUNs >>		
MYSERVER	1	eld		<u>Cancel</u>	<< No Data LUNs >>		
MYSERVER	uired Fi	eld			<< No Data LUNs >>		

Figure 139. Scheme Management dialog

9. Click **Domains** \rightarrow **Identity** to open the **Identities List** dialog.

VER and click OK to apply	or click New to create a r	Current Identity : none
and click OK to apply	or click New to create a r	
		iew identity.
	Description	
		<u>^</u>
Default identity used in th subsystem MYSERVER	ne single domain containg al	I hardware of the central
		~
IIII.		
<u>0</u> K	Cancel	Help
	subsystem MÝSERVER	

Figure 140. Domain Identities list

10.If the required identity is in the list, go to Step 11.

If you want to create a new identity for this domain, click **New** to open the **Create New Identity** dialog. See *Creating a Domain Identity*, on page 5-47.

- 11. Select the required identity from the list of available identities and click **OK** to return to the **Scheme Management** dialog. The selected identity is now displayed in the **Domain Identities** field.
- 12.Click **Domains** \rightarrow **EFI LUNs** to open the **Select EFI LUN** dialog.

Boot LUN from the list and cl			an Operat	ing Syste	m has bee	n installed. Select the required
Available EFI LUNs : Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
SAN: FDA1300						
LUN1	0000	RAID1	15.0GB	No	No	
🖳 LUN2	0000	RAID1	15.0GB	No	No	
Local: MYSERVER						
MYSERVER_OLUO		Local CELL_0		No	Yes	Default LUN attached to CELL_0 in the central subsystem MYSERVER
WYSERVER_0LU1		Local CELL_1		No	No	Default LUN attached to CELL_1 in the central subsystem MYSERVER
		CELL_1				ine central subsystem wrserver

1 SAN storage subystem

em 2 Local storage subsystem

13.If the required EFI LUN is in the list, go to Step 14.

If the required EFI LUN is not in the list, you must exit the Domain Scheme wizard to configure the EFI LUN. See *Pre–requisites*, on page 5-33.

- 14. Select the required EFI Boot Lun from the list of available Luns and click **OK** to return to the **Scheme Management** dialog. The selected LUN is now displayed in the **EFI LUNs** field.
- 15. If the EFI LUN is a Local LUN, the Status icon turns green, go to Step 16.

If the EFI LUN is a SAN LUN, the **Status** icon remains red and the **No Link** icon appears.

16.If the EFI LUN is a Local LUN and you do not want to add one or more Data LUNs to the domain, go to Step 26.

If the EFI LUN is a SAN LUN and you do not want to add one or more Data LUNs to the domain, go to Step 20.

If the EFI LUN is a Local or SAN LUN and you want to add one or more SAN Data LUNs to the domain, click **Domains** \rightarrow **Data LUNs** to open the **Select Data LUN** dialog.

ach Domain must have an EFI Boo					Identity : MyOperation
Optionally, each Domain may have 'o view Data LUN details, select the 'o allocate a Data LUN to a Domain 'o link a Data LUN on the SAN to a 'o remove a Data LUN from a Dom:	one or more Da Data LUN and h, select the Da Domain, select	ata LUNs f d click the ta LUN ar t the Data	or data s Details t nd click th LUN and	torage. outton. e Add button. I click the Link but	ton.
)ata luns available: Name	Туре	Capacity	Loaded	Allocated	Details
	Type	capacity	Loducu	HIDEUCCU	Description
DA1300 ELUN12	RAID5	10.0GB	No	Yes	
	I MD3	2000000	2055	No	
	RAIDS				
E LUN13	RAID5	1.0GB	No No		
LUN13 LUN14	RAID5	33.2GB	No	No	
EUN13 LUN14 LUN7 LUN7 LUN9	RAID5 RAID1 RAID5	33.2GB 15.0GB	No No Yes	No No	Link Details
LUN13 LUN14 LUN7	RAID5 RAID1 RAID5	33.2GB 15.0GB 10.0GB	No No Yes	No No Yes	Link Details Description
LUN13 LUN14 LUN7 LUN9 Pata luns selected: Name	RAID5 RAID1 RAID5	33.2GB 15.0GB 10.0GB	No No Yes	No No Yes Remove	
LUN13 LUN14 LUN7 LUN7 LUN9 ata luns selected: Name DA1300 ELUN1	RAID5 RAID1 RAID5 Type RAID5	33.26B 15.06B 10.06B	No No Yes Loaded	No No Yes Remove	
LUN13 LUN14 LUN7 LUN9 Iata luns selected: Name	RAID5 RAID1 RAID5	33.26B 15.06B 10.06B	No No Yes	No No Yes Remove	

Figure 141. Select Data LUN dialog - Data luns available list

17.Select the LUN you want to add to the domain in the **Data LUNs available** list and click **Details** to view LUN parameters, if required.

🎒 Edit LUN paramete	ers Dialogue de page We		×
Name:	LUN9		
Description:			<u> </u>
			-
	LUN Number: 0001	Type: RAID5 Size: 10.0GB	1
	LUN State: read		
			-1
Subsystem Name:		Subsystem Model: FDA]
Serial Number:	0000000928303375		
F EFI LUN			
🗖 Present	🗖 Loaded	Allocated NVRAM.	
		Cancel	

Name	Name given to the LUN when created.
Description	Brief description of the LUN.
LUN Number	Number allocated to the LUN when created.
LUN State	If the LUN is ready for use, READY is displayed.
Туре	LUN configuration mode.
Size	LUN size.
Subsystem Name	Name of the subsystem containing the LUN.
Subsystem Model	Type of subystem containing the LUN.
Serial Number	Serial number of the subsystem containing the LUN.
EFI LUN	If this box is checked, the LUN is an EFI boot LUN. If this box is not checked, the LUN is a Data LUN.
Present	If this box is checked, the LUN is detected. If this box is checked, the LUN is not detected.
Loaded	If this box is checked, the LUN is loaded in the Domain Manager Control pane. If this box is not checked, the LUN is not loaded in the Domain Manager Control pane.
Allocated	If this box is checked, the LUN is already allocated to a scheme. If this box is not checked, the LUN is not allocated to a scheme.

Figure 142. View LUN parameters dialog

18. Click Add. The selected Data LUN is moved to the Data LUNs selected list.

each Domain must have an EFI Bo Diptionally, each Domain may have					Identity : MyOpe	rations-1
					talled.	
o view Data LUN details, select th						
o allocate a Data LUN to a Domaii	n, select the Da	ta LUN ar	nd click th	e Add button.		
o link a Data LUN on the SAN to a o remove a Data LUN from a Dom						
o remove a Data Lon nom a Dom	iain, select the i	Data LON	and click	ule Kellivve bu	LUIN.	
ata luns available:	1	1	Ĩ	ī ī		Details
Name	Туре	Capacity	Loaded	Allocated	Description	
DA1300						14
EUN12	RAID5	10.0GB	No	Yes		
LUN13	RAID5	1.0GB	No	No		
Lottio						
	RAID5	33.2GB	No	No		
LUNIA LUN7	RAID5 RAID1	33.2GB 15.0GB	No No	No No		
🖳 LUN14	RAID1		No		Link	 Petails
LUN14	RAID1	Add	No	No Remove	je di internetti	 ⊃etails
LUN14 LUN7 Pata luns selected: Name	RAID1	15.0GB	No	No	Link [Description	
LUN14 LUN7 Nata luns selected: Name	RAID1	Add Capacity	Loaded	No Remove	je di internetti	Details
LUN14 LUN7 nata luns selected: Name DA1300 ELUN11	RAID1	Add Capacity	No 4 Loaded Yes	No Remove	je di internetti	
LUN14	RAID1	Add Capacity	Loaded	No Remove	je di internetti	

Figure 143. Select Data LUN dialog - Data luns selected list

19. Repeat Steps 17 and 18 for each Data LUN you want to add to the domain and click **OK** to return to the **Scheme Management** dialog. **Data LUN set** is now displayed in the **Data LUNs** field.

The **Status** icon remains red and the **No Link** icon \mathbb{E} is displayed. You must now link the selected EFI and Data LUNs to the Fibre Channel Host you want to use to access these LUNs.

1	🚰 Link Luns to HBA Dialogue de page Web			×
	Central Subsystem : MYSERVER			Identity : MyOperations-1
	When a LUN is connected to the SAN (Stor Domain's PCI slots.	age Area Network), i	t must be linked to at least one Fibre Cha	nnel Host plugged into one of the
	To establish the Primary Link between a LU	JN and a Fibre Chan	nel host, select the LUN from the list and	click the Set Primary Link button.
	For enhanced redundancy, each LUN can Fibre Channel host, select the LUN from th			
			Set Primary Link	Set Secondary Link
	LUN Name	Redundant	Set Primary Link Primary Link	Set Secondary Link Secondary Link
	LUN Name	Redundant		

20.Click **Domains** \rightarrow **Link** to open the **Link LUNs to HBA** dialog.

Figure 144. Link LUNs to HBA dialog

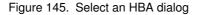
21. Select the **Redundant** checkbox if you want to define two links to the LUN.

Note:

If you select the **Redundant** mode, you will be informed that dedicated software is required to enable this mode and you will be requested to confirm your choice.

22.Click **Set Primary Link** to define the main access path to the SAN. The **Select HBA** dialog opens, allowing you to select the domain PCI slot you want to use to access the LUN.

Select an HBA Dialogue de page Central Subsystem : MYSERVEI Identity : MyOperati LUN : LUN9	R]
Select the required PCI Slot to a the Fibre Channel Host.	establish the primary link betwe	en LUN LL	JN9 and
PCI Slots	WWN	Linked	
E CELL_0: MODULE_0/IOB_0			_
	789F-7894-ABCD-7889	Yes	
CISLOT_2		No	
CISLOT_3		No	
PCISLOT_4		No	
CISLOT_5		No	
CISLOT_6	7878-9898-6666-8785	No	
PCISLOT_7		No	
CISLOT_8		No	
CISLOT_9		No	
CISLOT_10		No	
CISLOT_11	-	No	-
ОК	Cancel		_



- 23.Select the PCI slot containing the HBA to be used as the primary link to the SAN and click **OK**. The primary link is now set.
- 24. Where applicable, click **Set Secondary Link** to define the backup access path to the SAN. Select the PCI slot containing the HBA to be used as the secondary link to the SAN and click **OK**. The secondary link is now set.
- 25.Click $OK \rightarrow Apply$ to return to the Scheme Management dialog. The Status icon turns green and the Linked icon [] appears.
- 26. Repeat Steps 9 to 25 for the other domains. All Status icons turn green.

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	agama	nt with SAN Dialogue de pag	e Web			
cheme Name :	MVN	ewScheme		Central Subsystem		
escription:				Add	Remove	Modify
				Domains		
				Remove Identity E	FILUNs Data LUNs Link	Lock Hardware
		on of fully configured Domains			nd an EFI Boot LUN.	
		nay also include one or more ted to the SAN (Storage Area			e Channel Host plugged into on	e of the
omain's PCI sli		sted to the or without de rives	i i votine	ing, it made be inned to a risi	e onarmennost pragged into on	5 or allo
o select a EFI o add data lun o define links t	boot lu s, dou betwee	in, double-click the EFI LUNs 1 ble-click the Data LUNs field o in fiber channel hosts and lun	'ield or ir selec s conn	select a domain and click the t a domain and click the Data ected through the SAN, selec		ton.
CellBlocks	D	Domain Identities		EFILUNS	Data LUNs	LS
MYSERVER	D1	MyNewIdentity-1	8	UN1	🔊 << Data LUN set >>	L
		A CONTRACTOR OF A CONTRACTOR	3	LUN2	🗟 << Data LUN set >>	
	12	AMyNewIdentity-2		LOINZ		
1	-	😂 MyNewidentity-2				
<u>•</u> 2 •1		Mewidentity-2		- LONZ		
D2 D1		▲ MyNewIdentity-2				
92 91		▲ MyNewidentity-2				
92 91		ø©MyNewidentty-2				
2 21		ø MyNewidentty-2				
D2 D1						
	uired I	Field.				
		Field.		<u>Cancel</u>	Help	

NovaScale 6320 Server

cheme Name :	14.01	ewScheme	👼 Central Subsystem		
escription:	Mytv	ew5cneme	Add	Remove	Modify
escription.		<u>.</u>			
	3		Domains	EFILUNS Data LUNS Link	
			<u>Remove</u> Identity	EFILUNS Data LUNS Link	Lock Hardwa
ptionally, a Do rhen a LUN is omain's PCI si o select or crea o select a EFI o add data lur o define links	omain r connec lots. ate a [boot lu is, dou betwee	nay also include one or more D cted to the SAN (Storage Area I Domain Identity, double-click th In, double-click the EFI LUNS fild ble-click the Data LUNS fild in fiber channel hosts and luns	Network), it must be linked to a l e Domain identity field or select eld or select a domain and click r select a domain and click the D connected through the SAN, se	- Fibre Channel Host plugged into on a domain and click the Identities bu the EFI LUNs button.	tton.
o comportany.	who hard to	o como naranare componente i	rom a domain, obiocrato doma		
CellBlocks	D	Domain Identities	EFILUNS	Data LUNs	LS
MYSERVER	D	Domain Identities	EFI LUNS	Data LUNs	L S L S
	in the second	At MyNewIdentity-1	a second s	2 million 1	and the second
MYSERVER	D1		MYSERVER_0LU0	B << Data LUN set >>	and the second
MYSERVER	D1	At MyNewIdentity-1	MYSERVER_0LU0	B << Data LUN set >>	and the second
MYSERVER	D1	At MyNewIdentity-1	MYSERVER_0LU0	B << Data LUN set >>	and the second
MYSERVER	D 1	MyNewidentity-1	MYSERVER_0LU0	B << Data LUN set >>	and the second
MYSERVER	D 1	MyNewIdentity-1	MYSERVER_0LU0	B << Data LUN set >>	and the second
WYSERVER	quired I	MyNewIdentity-1	MYSERVER_OLUO	A << Data LUN set >> A << Data LUN set >>	and the second

Figure 146. Scheme Management dialog

27. If you do not want to functionally limit access to certain hardware elements, go to Step 28.

If you want to functionally limit domain access to certain hardware elements, click **Domains** \rightarrow **Lock Hardware** to open the **Lock Domain Hardware Resources** dialog. See *Limiting Access to Hardware Resources*, on page 5-62.

28. Click Save. The domain configuration scheme is now available for domain management.

Editing a Domain Configuration Scheme

To edit a domain configuration scheme:

- 1. Assess your configuration requirements. See *Assessing Configuration Requirements*, on page 5-31.
- 2. Click Configuration Tasks \rightarrow Domains \rightarrow Schemes in the PAM tree to open the Schemes pane. See Figure 136 above.
- 3. Select the required scheme from the list.
- 4. Click Edit in the toolbar to open the Edit Scheme dialog.

cheme Name :	MyN	ewScheme	🧠 🛛 Central Su	bsystem					
escription:				Add		R <u>e</u> mo∨e		Mod	lify
			Domains						
			<u>R</u> emove	Identity	EFI <u>L</u> UNs	<u>D</u> ata LUNs	Lin <u>k</u>	Loc	k Hardwar
tionally, a Do ten a LUN is t main's PCI sl select or cre select a EFI	omain r connec ots. ate a C boot Iu	on of fully configured Domains nay also include one or more Da ted to the SAN (Storage Area N Domain Identity, double-click the n, double-click the EFI LUNS field or :	ata LUNs. etwork), it must Domain Identity Id or select a do	be linked to a y field or select omain and clic	a Fibre Chann t a domain ar k the EFI LUN	el Host plugger Id click the Ider s button.			
temporarily e		n fiber channel hosts and luns (some hardware components fr Domain Identities	om a domain, s				are button.	L	S
MYSERVER	D1	HyNewIdentity-1	MYSERVER	R_OLUO	<	No Data LUNs >	·>.		<u>_</u>
	-02	MyNewIdentity-2	MYSERVER	R_OLU1	<	No Data LUNs >	»>		
22									-
D2 D1	juired I	-ield.							
	juired f		Canc	el [Help		

	Central Subsystem					
Add	Click here to add another Central Subsystem to your scheme. See <i>Creating a Domain Configuration Scheme</i> , on page 5-33.					
Remove	Click here to remove a Central Subsystem from your scheme.					
Modify	Click here to change the number of hardware partitions in your scheme.					
	Domains					
Remove	Click here to remove the selected domain from the scheme.					
Identity	Click here to select a domain identity.					
EFI LUNs	Click here to select an EFI Boot LUN.					
Data LUNs *	Click here to assign Data LUNs to the domain.					
Link *	Click here to define the fibre channel host to be used to access LUNs.					
Lock Hardware	Click here to limit access to certain hardware resources.					

* Reserved for systems connected to a Storage Area Network (SAN).

Figure 147. Edit Scheme dialog

5. Make the required changes and click **Save**. The modified domain configuration scheme is now available for domain management.

Copying a Domain Configuration Scheme

To copy a domain configuration scheme:

- 1. Click Configuration Tasks \rightarrow Domains \rightarrow Schemes in the PAM tree to open the Schemes pane. See Figure 136 above.
- 2. Select the required scheme from the list.
- 3. Click Copy in the toolbar. The Copy Scheme dialog opens.
- 4. Enter a name for the new scheme and click **OK**. The new domain configuration scheme is now available for domain management.

Deleting a Domain Configuration Scheme

To delete a domain configuration scheme:

- 1. Click Configuration Tasks \rightarrow Domains \rightarrow Schemes in the PAM tree to open the Schemes pane. See Figure 136 above.
- 2. Select the required scheme from the list.
- 3. Click **Delete** in the toolbar. You are requested to confirm scheme deletion.
- 4. Click **OK** to confirm. The domain configuration scheme is removed from the **Schemes** List and is no longer available for domain management.

Renaming a Domain Configuration Scheme

To rename a domain configuration scheme:

- 1. Click Configuration Tasks \rightarrow Domains \rightarrow Schemes in the PAM tree to open the Schemes pane. See Figure 136 above.
- 2. Select the required scheme from the list.
- 3. Click Rename in the toolbar.
- 4. Enter a new name for the scheme and click **OK**. The renamed domain configuration scheme is now available for domain management.

Updating Test Schemes

The **Domain Wizard** allows you to automatically generate and update a set of **Test Schemes**. These test schemes take into account all the hardware in your configuration. You may need to update your test schemes after a service intervention entailing the addition/removal of hardware elements.

To update test schemes:

- 1. Click **Configuration Tasks** → **Domains** → **Schemes** in the PAM tree to open the **Schemes** pane. See Figure 136 above.
- 2. Click **Test Schemes Update** in the toolbar. Default test schemes are automatically updated.

Creating, Editing, Copying, Deleting a Domain Identity

Dote:

Domain Identities can either be created via the **Domain Configuration Scheme** wizard or, independently, via the **Identities** configuration page. See *Creating a Domain Configuration Scheme*, on page 5-33.

Creating a Domain Identity

To create a domain identity:

- 1. Assess your configuration requirements. See *Assessing Configuration Requirements*, on page 5-31.
- 2. Click Configuration Tasks \rightarrow Domains \rightarrow Identities in the PAM tree to open the Identities Management page.

🗋 <u>N</u> ew 🦁 Edit 🖻 <u>O</u>	opy 🐰 <u>D</u> elete			🕄 He
	Charles Startes	847 S. C. C. S.	and a local sector	
Identities	Operating System	Version	In use	Description
All MyBusiness-1	WINDOWS_64		No	Time zone: Central America, Boot path: EFI OLu
🛆 MyOffpeakProd	LINUX		No	Time zone: Paris, Boot path: EFI 0Lun1
MyOperations-1	WINDOWS_64		No	Default identity for Domain-1. OS location: Mode 0, IOB-0, EFI LUN0.
⚠ MyOperations-2	LINUX		No	Default identity for Domain-2. OS location: Modu 0, IOB-1, EFI LUN-1.
🛆 MyPayroll	LINUX		Yes	Time zone: Paris, Boot path: EFI 0Lun1
At MyProduction	WINDOWS_64		Yes	Time zone: Vladivostok, Boot path: EFI 0Lun0
TEST	OTHER OS		No	Identity used for test purpose. It is reserved to b used in test schemes.

Figure 148. Identities List page

3. Click New in the toolbar to open the Create New Identity dialog.

🙆 Identity Dialogue de page Web. 🛛 🛛
Create a New Identity
Domain identity name is used to uniquely identify a domain. Identity Name :
Description :
Domain Settings Select the Operating System and Version to be used by the domain to run your activities. Operating System : Other Version : Other
Management Parameters Enter the Network Name and IP address to be used by System Management software to access the domain. Enter the URL to be used by a Web browser to access the domain Web site.
Network Name : IP Address : URL :
CPU Parameters This option is only applicable to multithreading capable CPUs. Monothreading Mode Multithreading Mode
High Memory IO Space Only use this memory addressing extension if supported by your hardware and Operating System. Enable PCI gap above 4 GB
Licensing Number Serial Number : Serial Number : Substitute mode
Machine Check Force Halt on Machine Check Reset (Option reserved for use by Support personnel) Required Field.
<u>Ok</u>

Name	Name reflecting the tasks/jobs to be run by the domain.			
Description	Brief description reflecting domain use.			
•				
Operating System Version	OS and OS version to be run on this domain. Note:			
	Check that the selected OS supports assigned hardware (CPUs, DIMMs)?			
Domain Network Name	Network name used to identify this domain.			
Domain IP Address	IP address used to reach this domain.			
Domain URL	URL used to reach the domain Web site (if any).			
Multithreading Mode	Enable / disable multithreading.			
	Note: Check that the CPUs used by this domain support the			
	multithreading mode.			
High Memory IO Space	Enable / disable extended PCI gap memory space.			
	Note:			
	Only use if this domain uses PCI boards requiring more than 4GB PCI gap space.			
	Compatibility problems may arise under Windows.			
Licensing Number	Licensing number used by protected applications, created by adding a two digit extension to the system serial number.			
	Enable / disable substitute mode.			
	Check this box to substitute the physical system serial			
	number with the logical licensing number for optimum flexibility.			
Force Halt on Machine	Enable / disable automatic domain reset when a ma-			
Check Reset	chine check error occurs.			
	Note: Check this box when requested by your Customer Servi-			
	ce Engineer.			

Figure 149. Create New Identity dialog

- 4. Complete the Name, Description, Domain Settings, Management Parameters, Multithreading Mode, HMMIO Space, Machine Check, Licensing Number and Force Halt on Machine Check Reset fields, as required:
 - a. Select:

Multithreading Mode if you want this domain to use multithreading features (if the CPUs used by the domain support the multithreading mode) or

Monothreading Mode if you do not want this domain to use multithreading features or if the CPUs used by the domain do not support the multithreading mode.

b. Select **Enable PCI gap above 4 GB** if the PCI boards used by the domain require more than 4 GB PCI gap space.

I Note:

Please read the documentation delivered with your PCI boards for details about features and requirements.

- c. Select a system **Serial Number** from the scroll–down list and add a two digit extension to automatically create the **Licensing Number** to be used by protected applications running on this domain.
- d. Select **Substitute Mode** if you want to substitute the physical system serial number with the logical licensing number for optimum flexibility.



Please read the documentation delivered with your application for details about licensing requirements.

e. If requested by your Customer Service Engineer, select **Force Halt on Machine Check Reset** to halt the domain when a machine check error occurs.

Image: Note:

When this box is NOT checked, the domain will automatically reset when a machine check error occurs.

5. Click **OK**. The new identity appears in the **Identities List** page and can be applied to a hardware partition via the **Domain Configuration Scheme** wizard.

Editing a Domain Identity

To modify domain identity settings, management parameters and/or description:

- 1. Assess your configuration requirements. See *Assessing Configuration Requirements*, on page 5-31.
- 2. Click **Configuration Tasks** → **Domains** → **Identities** in the PAM tree to open the **Identities Management** page. See Figure 148 above.
- 3. Select the required identity from the list.
- 4. Click **Edit** in the toolbar. The **Edit an Identity** dialog opens, allowing you to modify domain identity settings, management parameters and/or description. See Figure 149 above.
- 5. Change settings as required.
- 6. Click **OK** to confirm the modification.

Copying a Domain Identity

To copy a domain identity:

- 1. Click Configuration Tasks → Domains → Identities in the PAM tree to open the Identities Management page. See Figure 148 above.
- 2. Select the required identity from the list.
- 3. Click Copy in the toolbar. The Copy Identity dialog opens.
- 4. Enter the name for the new identity and click OK to confirm.
- 5. The new identity appears in the **Identities List** page and can be applied to a hardware partition via the **Domain Configuration Scheme** wizard.

Deleting a Domain Identity

Important:

If a Domain Identity is used in a Scheme, it cannot be deleted.

To delete a domain identity:

- 1. Click **Configuration Tasks** → **Domains** → **Identities** in the PAM tree to open the **Identities List** page. See Figure 148 above.
- 2. Select the required identity from the list.
- 3. Click **Delete** in the toolbar and click **OK** to confirm. The selected identity is removed from the **Identities List**.

Managing Logical Units (Servers Connected to a SAN)



Important:

Certain features described below are only available if you are connected to a Storage Area Network (SAN).

Please contact your Bull Sales Representative for sales information.

What You Can Do

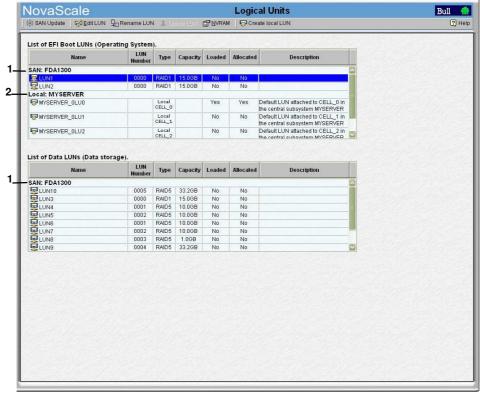
- Update SAN LUN Lists
- Create Local LUNs
- Edit LUNs
- Rename LUNs
- Delete LUNs
- Clear, Load, Save NVRAM Variables

I Note:

EFI LUNs and Data LUNs must be created from the utility delivered with the storage subsystem. See *Configuring System and Data Disks*, on page 5-4.

To open the Logical Units management page:

1. Click Configuration Tasks \rightarrow Domains \rightarrow LUNs in the PAM tree.



1 SAN storage subystem

2 Local storage subsystem

Dotes:

- EFI Boot LUNS, on which Operating Systems are installed, are listed at the top of the pane.
- Data LUNs, on which data can be stored, are listed at the bottom of the pane.

	Command Bar					
SAN Update	Update the lists of SAN LUNs.					
Edit LUN	Modify the LUN name, description, and change a Data LUN into an EFI LUN and vice-versa.					
Rename LUN	Modify the LUN name.					
NVRAM	Clear, load and save EFI Boot LUN NVRAM variables.					
Create Local LUN	Create a new local LUN.					
Delete Local LUN	Delete a non-allocated local LUN.					
	LUN Lists					
Name	LUN name.					
LUN Number Number allocated to the LUN.						
Туре	RAID configuration type. RAID1 is recommended for EFI LUNs and RAID5 for Data LUNs.					
Capacity	LUN storage capacity.					
Loaded	Yes LUN used by a currently loaded domain. No LUN not used by a currently loaded domain.					
Allocated	Yes LUN allocated to a domain within a Domain Configuration Scheme. No LUN not allocated to a domain within a Domain Configuration Scheme.					
Description	Description, indicating LUN location (Central Subsystem name and Cell and/or storage subsystem name).					

Figure 150. Logical Units page - servers connected to a SAN

Updating SAN LUN Lists



Important:

Reserved for systems connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

When new LUNs are added to / removed from your Storage Area Network, they can be automatically added to / removed from the list of available LUNs by using the **PAM SAN Update** command, which allows you to update the lists of available LUNs on the SAN at any time.

I Notes:

- This command CANNOT be used to update the lists of local LUNs.
- This command is automatically performed when a PAM session is launched on the PAP unit and when a disk subsystem change takes place.
- When a new LUN is found, PAM considers it as a Data LUN by default. If you want to change this LUN into an EFI Boot LUN, use **Edit LUN**.

To update the lists of available SAN LUNs:

- 1. Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Click SAN Update. A confirmation dialog opens.
- 3. Click **Yes** to update the lists of available LUNs. The **SAN Update Progress Bar** is displayed.

j 🕞 Create LUN 😽 Edit LUN 📲 Rename LUN	👗 Delete LUN 🕋 🖄 VRAM 🌸 SAN Discovery	😰 Help
SAN LUN discovery started	 	

Figure 151. SAN Update progress bar

Once the process is complete, the LUN lists are updated to reflect configuration changes.

Creating Local LUNs

When you create a new LUN via the software delivered with your local storage subsystem, you must also declare this new LUN by using the **PAM Create Local LUN** command.

I Note:

This command **CANNOT** be used to create new SAN LUNs.

To update the list of available local LUNs:

- Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Click Create LUN to open the Create Local LUN dialog.

🚰 Create LUN Dialogue de page Web 🛛 🔀
Create LUN
1.Select the required Central Subsystem MYSERVER
Cells composition for the selected Central Subsystem:
MODULE_1 🔡 🧱
MODULE_0 🔡 🔡
2.Select the required available cell CELL_0 CELL_0 CELL_0
3.Enter the LU CELL_1 LUN Name : CELL_2 CELL_3
Description :
4.Select an EFI LUN if you want to install an Operating System on this LUN. Select DATA LUN if you want to write data to this LUN. © EFI LUN © DATA LUN
Required Field.
<u>Create</u>

Figure 152. Create Local LUN dialog

- 3. Use the **Central Subsystem** drop–down menu to select the Central Subsystem to which the LUN is connected.
- 4. Use the **Available Cell** drop–down menu to select the cell to which the LUN is connected.
- 5. Enter the name given to the LUN in the LUN Name field with a brief description.
- 6. Select the EFI LUN or DATA LUN radio button, as required and click Create. The list of available local LUNs is updated.

Deleting LUNs

I Notes:

• A LUN **CANNOT** be deleted if it is allocated to a Scheme.

To delete a LUN:

- Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Select the required LUN from the lists of available local LUNs and click **Delete LUN** to open the **Delete LUN** dialog.

Delete	e LUN Dialogue de page Web	×
0	Are you sure you want delete this lun ?	
	Yes No	

Figure 153. Delete LUN dialog

3. Click Yes to confirm. The LUN is removed from the list of available LUNs.

Editing LUNs



Important: Reserved for systems connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

I Notes:

- A LUN CANNOT be edited if it is allocated to a Scheme.
- The NVRAM button is NOT ACCESSIBLE if no NVRAM variables are available for the selected LUN.

If required, you can modify the EFI / Data LUN names, description, NVRAM variables, and/or change a Data LUN into an EFI LUN or vice–versa.

To edit a LUN:

- Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Select the LUN you want to modify from the lists of available LUNs and click **Edit LUN** to open the **Edit LUN** dialog.

	🚰 Edit LUN paramete	rs Dialogue de page Web		×
	Name:	LUN8	•	
	Description:			
ì				
				V
:		LUN Number: 0000	Type: RAID1 Size: 15.0GI	3
		LUN State: ready		
	Subsystem Name:	FDA1300	Subsystem Model: FDA	
	Serial Number:	0000000928303378		
	Present	Loaded	Allocated	RAM
	🤻 Indicates Requ	ired Field.		
		<u>O</u> K	Cancel	



- 3. Modify LUN parameters as required:
 - a. Enter a new name in the Name field if you want to change the LUN name.
 - b. Enter a new description in the **Description** field if you want to change the LUN description.
 - c. Select the EFI LUN checkbox if you want to change a Data LUN into an EFI LUN.
 - d. Deselect the EFI LUN checkbox if you want to change an EFI LUN into a Data LUN.
- 4. Click **OK** to apply changes.

Renaming LUNs



Important: Reserved for systems connected to a Storage Area Network (SAN). Please contact your Bull Sales Representative for sales information.

Note:

A LUN CANNOT be renamed if it is allocated to a Scheme.

To rename a LUN:

- Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Select the LUN you want to rename from the lists of available LUNs and click **Rename** LUN to open the **Rename LUN** dialog.

🚰 Rename LUN Dialogue de page Web	×
Current Lun Name : SAN_OLUO New Lun Name :	
<u>O</u> K. <u>Cancel</u>	

Figure 155. Rename LUN dialog

3. Enter the new name and click **OK** to apply the change.

Clearing, Loading, Saving NVRAM Variables

NVRAM variables are available for each EFI boot LUN. According to requirements, these variables can be cleared, saved and/or loaded.

Note:

NVRAM variables can only be saved when the corresponding domain is active.

To clear, save and/or load NVRAM variables:

- Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Select the required LUN from the list of available EFI boot LUNs and click **NVRAM**. The **NVRAM Variables** dialog opens:
 - a. Click **Clear** to clear displayed NVRAM variables. When requested, click **OK** to confirm.
 - b. Click Save to save NVRAM variables for the selected LUN (currently used by an active domain). When requested, enter the name of the file to which NVRAM variables are to be saved. The NVRAM variables file is stored in the PAM SiteData directory.
 - c. Click **Load** to load previously saved NVRAM variables from the PAM SiteData directory.

Managing Logical Units (Servers Not Connected to a SAN)

Your server is delivered with default EFI Boot LUNs. You can use the software delivered with your storage subsystem to define data LUNs.

What You Can Do

- Clear, Load, Save NVRAM Variables
- Update the Local LUN Lists

To open the Logical Units management page:

1. Click Configuration Tasks \rightarrow Domains \rightarrow LUNs in the PAM tree.

Name	EFI	In Use In Domain	in Use in Scheme	NVRAM	Description
WYSERVER_OLUO	EFI	Yes	Yes	No	Default LUN attached to CELL_0 in the central subsystem MYSERVER
MYSERVER_OLU1	EFI	Yes -	Yes	No	Default LUN attached to CELL_1 in the central subsystem MYSERVER
MYSERVER_0LU2	EFI	Yes	Yes	No	Default LUN attached to CELL_2 in the central subsystem MYSERVER
MYSERVER_OLU3	EFI	Yes	Yes	No	Default LUN attached to CELL_3 in the central subsystem MYSERVER

Name	Default LUN name				
EFI	EFI This LUN is a boot LUN. DATA This LUN is a data LUN.				
In Use in Domain	Yes This LUN is used by a domain currently loaded in the Domain Manager Control pane. No This LUN is not used by a domain currently loaded in the Domain Man- ager Control pane.				
In Use in Scheme	Yes This LUN has been allocated to a domain within a Domain Configuration Scheme. No This LUN has not been allocated to a domain within a Domain Configu- ration Scheme.				
NVRAM	Yes NVRAM variables have been saved for this LUN. No NVRAM variables have not been saved for this LUN.				
Description	Default description, indicating LUN location (Central Subsystem name and Cell).				

Figure 156. Logical Units page - servers not connected to a SAN

Updating the Local LUN Lists

The lists of available local LUNs are automatically created when a Central Subsystem is declared and/or added. You can update the lists of available local LUNs at any time to reflect configuration changes.

To update the local LUN lists:

- Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Click **Update**. When requested, click **OK** to confirm. The new LUN lists are displayed in the **Logical Units** page.

Clearing, Loading, Saving NVRAM Variables

NVRAM variables are available for each EFI boot LUN. According to requirements, these variables can be cleared, saved and/or loaded.

- Click Configuration Tasks → Domains → LUNs in the PAM tree to open the Logical Units page.
- 2. Select the required LUN from the list of available EFI Boot LUNs and click **NVRAM**. The **NVRAM Variables** dialog opens.
 - a. Click **Clear** to clear displayed NVRAM variables. When requested, click **OK** to confirm.
 - b. Click Save to save NVRAM variables for the selected EFI Boot LUN (currently used by an active domain). When requested, enter the name of the file to which NVRAM variables are to be saved. The NVRAM variables file is stored in the PAM SiteData directory.
 - c. Click **Load** to load previously saved NVRAM variables from the PAM SiteData directory.

Checking and Updating Fibre Channel HBA World Wide Names

To control LUN access, Bull NovaScale Servers use LUN masking at Host Bus Adapter (HBA) driver level. Each Fibre Channel HBA driver contains a masking utility using the World Wide Name (WWN) to limit LUN access. As a result, users are only aware of the LUNs to which they have access.

Whenever you add, change or move a Fibre Channel HBA, you must update the corresponding World Wide Name (WWN) parameters via the PAM interface.

To update an HBA World Wide Name:

- 1. Click Configuration Tasks \rightarrow Domains \rightarrow HBAs in the PAM tree.
- 2. Expand the required Central Subsystem node down to the IOB housing the HBA concerned.

Status 🧿 🛐	NovaScale		HBA Worldwide N	Name	Bull 💮
Events •• • • • • • • • • • • • • • • • • •		ole-click	a PCI board to modify World	wide name.	
NovaScale			Worldwide Name		
🖶 🔯 🗖 Hardware Monitor 🕀 🥥 History Manager		11			
🕂 🛠 Servicing Tools 🖓 🚱 Configuration Tasks		10			
Central Subsystem		9			
Schemes	100	8			
LUNS E B B HBAS	Ethernet contr. 7	7			
		6			
上前 <mark>108_0</mark> 108_1	18	5			
⊡ III MODULE_1	18	4			
- 🚰 IOB_1 - 🔩 Customer Information	Fibre controller 1- 2	3	1000 0000 0000 5000		
- GUser Histories ⊕ ioi Events	SCSI controller	2	1000-0000-C938-5C96		
Autocalis		1000	ots information collected at last d	lomain power on.	
		21.55.12			

3. Select the IOB. The HBA Worldwide Name page opens.

Figure 157. HBA Worldwide Name page

4. Double–click the required PCI board to update the WWN. The **Modify PCI HBA Worldwide Name** dialog opens.

NovaScale		HBA Worldwide Name	Bull 💮
] 🔚 Save			🕄 Help
Doubl	e-click	a PCI board to modify Worldwide name.	
		Worldwide Name	
	11	Modify PCI HBA Worldwide name — Dialogue de pop. 🔀	2000
	10	PCI Slot 2 undefined	
	9	Worldwide name	
Ethernet contr. 1- 7	8	Current 1000 - 0000 - C938 - 5C96 New 1000 - 0000 - C938 - 5C96	2007
	7	New 1000 - 0000 - C938 - 5C96	
18 1- 5	5		
18 - 4	4		24.9
18 - 3	3		
Fibre controller 1- 2	2	1000-0000-C938-5C96	
SCSI controller	1		2000
	PCIS	lots information collected at last domain power on.	
	34		

Figure 158. Modify PCI HBA Worldwide Name dialog

5. Enter the WWN supplied with the HBA and click **Save** to apply changes.

Limiting Access to Hardware Resources

You can functionally limit access to certain hardware elements. Locked elements can no longer be accessed by the current domain, but are still physically available for access by other domains. Previously locked elements can be unlocked so that they can be accessed by the domain.

I Notes:

- The domain must be **INACTIVE** before configuration changes can be made.
- Hardware locking / unlocking is only taken into account at the next domain power ON.
- · Hardware components to be functionally included (unlocked) in the domain at the next

domain power ON are marked with a yellow icon in the **Lock Request** column in the **Domain Hardware Details** page.

 Hardware components to be functionally excluded (locked) from the domain at the next domain power ON are marked with a red / yellow a icon in the Lock Request column in the Domain Hardware Details page.

See Viewing Domain Configuration, Resources and Status, on page 3-32.

The following domain hardware elements can be locked / unlocked:

Table 42. Hardware locking options

To lock / unlock a domain hardware element:

- 1. Open the Lock Domain Hardware Resources dialog:
 - a. If you are configuring a domain scheme:

From the **Scheme Management** dialog, select the required domain and click **Lock Hardware**.

- b. If you want to edit a previously defined domain scheme:
 - . From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Schemes \rightarrow Edit.
 - . Select the required domain and click Lock Hardware

🚰 Lock Domain Hardware Resources Dialogue de pa	ge Web 🔀
Domain : MyOperations-1 EFI LUN : MYSERVER_OLUO	Central Subsystem : MYSERVER
This Domain comprises: CELL_0	
To temporarily exclude a hardware component fi All non-excluded components can be locked.	om this domain, it must first be locked .
	e Component Checkbox and click OK. t the Component Checkbox and click OK.
Image: Constraint of the second se	
	i <u>H</u> elp

Figure 159. Lock domain hardware resources dialog

- 2. Expand the component tree to view the hardware element you want to lock / unlock.
- 3. Select the corresponding checkbox to lock the element or deselect to unlock a previously locked element.

🖉 Lock Domain Hardware Resources Dialogue de pag	e Web
Domain : MyOperations-1 EFI LUN : MYSERVER_0LU0	Central Subsystem : MYSERVER
This Domain comprises: CELL_0	
To temporarily exclude a hardware component fro All non-excluded components can be locked.	om this domain, it must first be locked .
To lock a hardware component, select the To unlock a hardware component, select	e Component Checkbox and click OK. the Component Checkbox and click OK.
MYSERVER GBB CELL GBB GBB GBB GBB GBB GBB GBB GBB GCPU GCPU GCPU CCPU GCPU GCP	
<u>QK</u> <u>C</u> ance	Help

Figure 160. Lock domain hardware resources dialog – PCI slot selected

4. Click $\mathbf{OK} \rightarrow \mathbf{Apply}$ to return to the $\mathbf{Schemes}\ \mathbf{Management}\ \mathsf{pane}.$

Creating a Mono–Domain Scheme Using All Server Resources

IF Notes:

- A domain configuration scheme can include more than one Central Subsystems. If you have more than one Bull NovaScale Server, see *Configuring and Managing Extended Systems*, on page 5-108.
- For more information about scheme configuration options, refer to:
 - Assessing Configuration Requirements, on page 5-31
 - Creating a Domain Configuration Scheme, on page 5-33
 - Creating a Domain Identity, on page 5-48

The configuration criteria set out in the following tables is used to illustrate this example:

NovaScale 6080/6160 Server

	Scheme					
Name	MyBusinessScheme					
Description	Mono-domain, Cells 0 & 1, Boot 0Lun0, MyBusiness-1					
Central Subsystem(s)	MyServer					
Number of domains	1					
Domain size	2 cells: Cell0 & Cell 1					
EFI boot LUNs	SAN: FDA1300 LUN1					
Data LUNs *	SAN: FDA 1300 LUN10, LUN6					
Fibre channel hosts *	Primary Link: Cell_0: Module_0/IOB_0/PCISLOT_1					
	Secondary Link: Cell_1: Module_0/IOB_1/PCISLOT_1					
IO resource location	0IOB0 mandatory, 0IOB1 optional					
Resource access	All resources unlocked					
Domain Identity						
Name	MyBusiness–1					
Description	Time zone: Central America					
Operating System	Windows					
Domain network name	MyBusiness–1Net					
Domain IP address	123.123.12.1					
Domain URL	http://www.MyBusiness-1Web.com					
Domain threading mode	Monothreading					
HMMIO space	Disabled					
Licensing number	XAN-YYY-12345/11					
Substitute mode	Disabled					
Halt on machine check reset	Disabled					

* Reserved for systems connected to a Storage Area Network (SAN).

 Table 43.
 Scheme configuration criteria – example 1 – mono–module server

NovaScale 6320 Server

	Scheme			
Name	MyBusinessScheme			
Description	Mono-domain, Cells 0, 1, 2 & 3, Boot 0Lun0, MyBusiness-1			
Central Subsystem(s)	MyServer			
Number of domains	1			
Domain size	4 cells: Cell0, Cell1, Cell2 & Cell 3			
EFI boot LUNs	SAN: FDA1300 LUN1			
Data LUNs *	SAN: FDA 1300 LUN10, LUN6			
Fibre channel hosts *	Primary Link: Cell_0: Module_0/IOB_0/PCISLOT_1			
	Secondary Link: Cell_3: Module_1/IOB_1/PCISLOT_1			
IO resource location	0IOB0 mandatory, 0IOB1, 1IOB0, & 1IOB1 optional			
Resource access	All resources unlocked			
Domain Identity				
Name	MyBusiness–1			
Description	Time zone: Central America, Boot path: EFI 0Lun0			
Operating System	Windows			
Domain network name	MyBusiness–1Net			
Domain IP address	123.123.12.1			
Domain URL	http://www.MyBusiness-1Web.com			
Domain threading mode	Monothreading			
HMMIO space	Disabled			
Licensing number	XAN-YYY-12345/11			
Substitute mode	Disabled			
Halt on machine check reset	Disabled			

* Reserved for systems connected to a Storage Area Network (SAN).

Table 44. Scheme configuration criteria – example 1 – bi–module server

To create a mono-domain scheme using all server resources:

- 1. Check that the required hardware resources are available (at least one IOB and one QBB are required for each server domain) and that the domain Operating System supports the required hardware resources (CPUs, DIMMs, ...).
- 2. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Schemes to open the Schemes Management pane.
- 3. Click **New** to open the **Scheme Creation** dialog.
- 4. Complete the Scheme and Description fields.

Welcome to th Your server C physically inde A domain is a System instan	Mono-domain, Cells 0 & 1, MyBusiness-1 e Domain Scheme wizard. entral Subsystem is designe spendent domains. set of hardware and softwar ce.		Domains Remove	ed architecture a		artitioning into up to four	ardwara
Welcome to th Your server C physically inde A domain is a System instan	e Domain Scheme wizard. entral Subsystem is designe ependent domains. set of hardware and softwar ce.	ed around a fle	Bemove	ed architecture a	illowing dynamic pa	artitioning into up to four	
Your server C physically inde A domain is a System instan	entral Subsystem is designe ependent domains. set of hardware and softwar ce.		exible, cell-bas	ed architecture a	illowing dynamic pa	artitioning into up to four	
Your server C physically inde A domain is a System instan	entral Subsystem is designe ependent domains. set of hardware and softwar ce.						
Your server C physically inde A domain is a System instan	entral Subsystem is designe ependent domains. set of hardware and softwar ce.						
physically inde A domain is a System instan	ependent domains. set of hardware and softwar ce.						
System instan	ce.	e resources, :	spanning one	or more Central S	Subsystem cells, m	nanaged by a single Onera	1
A Domain Sch	eme is the template used to					lanagea bij a single opera	ting
	is the second se	define and m	anage a set of	f domains that ca	n be active simulta	aneously.	
Complete the	Scheme Name and optional	v Description	fields and click	Add to begin do	main scheme crea	tion	
Complete the	contente mane ana optionary	, percentipation (that to begin de		alort.	
Indicates Requ	lired Field.						
	Save		Cancel			Help	

Figure 161. Scheme creation dialog - example 1

 Click Central Subsystem → Add to select the Central Subsystem to be used by the domain configuration scheme. The Central Subsystem Configuration dialog opens.

NovaScale 6080/6160 Server

Select the Central Subsystem Name Cells CPU Memory Status MYSERVER 2 16 0 PRESENT MYSERVER 2 16 0 PRESENT Each Central Subsystem can be divided into up to 2 partitions. Image: Cell state of the required number of partitions. Image: Cell state of the required number of partitions. I- Use the dropdown list to select the required number of partitions: Image: Cell state of the required number of partitions. Image: Cell state of the required number of partitions. Pumber of Partition 1 Partition 2 Image: Cell state of the required number of the required number of partitions. Image: Cell state of the required number of the required number of partitions. Pumber of Partition 1 Partition 2 Image: Cell state of the required number of the required	🗿 Add and Coni	figure Central Su	bsystem Dia	alogue de	page Web		
Image: Myserver 2 16 0 PRESENT Each Central Subsystem can be divided into up to 2 partitions. I- Use the dropdown list to select the required number of partitions. Number of Partitions: 2 2- Select a configuration and click OK to continue. MODULE_1 Partition 1 Partition 1 Partition 1 Partition 1 Partition 2 CPU 8 0			1	1			
Each Central Subsystem can be divided into up to 2 partitions. I- Use the dropdown list to select the required number of partitions. Number of Partitions: 2- Select a configuration and click OK to continue. 2- Select a configuration and click OK to continue. MODULE_1 Partition 1 Partition 2 CPU Memory (MB) 0 0 0 0 0 0 0 0 0 0 0 0 0	Central S	ubsystem Name	Cells	CPU	Memory	Status	
I- Use the dropdown list to select the required number of partitions. Number of Partitions: 2 2- Select a configuration and click OK to continue. MODULE_1 MODULE_0 Partition 1 Partition 2 CELL_0 Total 8 8 0 0 Nemory (MB) Partition 2 CELL_1 Total 8 8 0 0 Partition 2 CELL_1 Total	MYSERVER		2	16	0	PRESENT	
I- Use the dropdown list to select the required number of partitions. Number of Partitions: 2 2- Select a configuration and click OK to continue. MODULE_1 MODULE_0 Partition 1 Partition 2 CELL_0 Total 8 8 0 0 Nemory (MB) Partition 2 CELL_1 Total 8 8 0 0 Partition 2 CELL_1 Total							
I- Use the dropdown list to select the required number of partitions. Number of Partitions: 2 2- Select a configuration and click OK to continue. MODULE_1 MODULE_0 Partition 1 Partition 2 CELL_0 Total 8 8 0 0 Nemory (MB) Partition 2 CELL_1 Total 8 8 0 0 Partition 2 CELL_1 Total							
I- Use the dropdown list to select the required number of partitions. Number of Partitions: 2 2- Select a configuration and click OK to continue. MODULE_1 MODULE_0 Partition 1 Partition 2 CELL_0 Total 8 8 0 0 Nemory (MB) Partition 2 CELL_1 Total 8 8 0 0 Partition 2 CELL_1 Total							-
I- Use the dropdown list to select the required number of partitions. Number of Partitions: 2 2- Select a configuration and click OK to continue. MODULE_1 MODULE_0 Partition 1 Partition 2 CELL_0 Total 8 8 0 0 Nemory (MB) Partition 2 CELL_1 Total 8 8 0 0 Partition 2 CELL_1 Total	Fach Central S	uhsystem can h	e divided into	un to 2 r	artitions		
Number of Partitions: Partition 2 Partition 1 Partition 2 CPU 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		abbystein ean b		op 10 2 p	annono.		
Number of Partitions: Partition 2 Partition 1 Partition 2 CPU 0 0 0 Partition 1 Partition 2 CPU 0 0 0 Partition 1 Partition 2 CPU 0 0 0 Partition 1 Partition 2 CELL_0 Total 0 0 Partition 2							
2- Select a configuration and click OK to continue. MODULE_1 MODULE_0 Partition 1 Partition 2 CELL_0 Total Remony (MB) 0 0	- Use the drop	down list to sele	ect the require	d numbe	r of partitio	ons.	
MODULE_1 Partition 1 Partition 2 CPU 8 8 8 8 8 8 8 8 8 8 0 <th< td=""><td>Number of P</td><td>artitions: 2</td><td></td><td></td><th></th><td></td><td></td></th<>	Number of P	artitions: 2					
MODULE_1 Partition 1 Partition 2 CPU 8 8 8 8 8 8 8 8 8 8 0 <th< td=""><td></td><td></td><td></td><td></td><th></th><td></td><td></td></th<>							
MODULE_0 Image: Constraint of the second secon	2- Select a con	figuration and cl	ick OK to con	tinue.			
MODULE_0 Image: Constraint of the second secon							
Partition 1 Partition 2 CELL_0 Total CELL_1 Total CPU 8 8 8 Memory (MB) 0 0 0 0	MODULE_1						
Partition 1 Partition 2 CELL_0 Total CELL_1 Total CPU 8 8 8 Memory (MB) 0 0 0 0							
Partition 1 Partition 2 CELL_0 Total CELL_1 Total CPU 8 8 8 Memory (MB) 0 0 0 0	MODULE 0						
CELL_0 Total CELL_1 Total CPU 8 8 8 Memory (MB) 0 0 0							
CELL_0 Total CELL_1 Total CPU 8 8 8 Memory (MB) 0 0 0		Partition 1	Partition 2				
CPU 8 8 8 Memory (MB) 0 0 0 0		1					
Memony (MB) 0 0 0 0		_	_				
	CPU	8 8	8 8	;			
<u>QK</u> <u>Cancel</u> <u>H</u> elp	Memory (MB)	0 0	0 0				
<u>QK</u> <u>Cancel</u> <u>H</u> elp				_			
		. 1					1
	0	K	<u></u> a	ncel		<u> </u>	

NovaScale 6320 Server

Add and Con			• • • • • • • • • • • • • • • • • • •		ie de p	page Web		
Select the Ce			1	1				
Central S	ubsysten	n Name	Ce	ells Cl	PU	Memory	Status	
MYSERVER			4	4 3	32	0	PRESENT	
								-
Each Central S	lubsyster	m can be	divided	into up ti	o 4 pa	artitions.		
1 Lloo tha drar	doun lioi	+ +	+ + h a raa	unived on	mhar	of postitie		
1- Use the drop			the rec	juirea hu	mber	or partitio	ons.	
Number of P	artitions:	1	<u> </u>					
2- Select a cor	nguration	n and clic	k OK to	continue	9.			
MODULE 1	6.8 (500						
WODULE_I								
	6.8 (5-89						
MODULE_0								
		Pa	artition 1					
	CELL_0	CELL_1	CELL_2	CELL_3	Total			
CPU	8	8	8	8	32			
Memory (MB)	0	0	0	0	0			
	0	0	U	Ű	0			
0	IK		ſ	Cancel			<u>H</u> elp	

Figure 162. Central Subsystem configuration dialog - example 1

- 6. Check that the required Central Subsystem is highlighted and select **1** in the **Number of Parts** dropdown list.
- 7. Select the required partition configuration and click **OK** to return to the **Scheme Management** dialog.

The **Status** icon is red because a **Domain Identity** and an **EFI LUN** are required to complete domain configuration.

NovaScale 6080/6160 Server

🛃 Scheme Mana	gement with S	iAN Dialogue de pa	ge Web			
Scheme Name :	MyBusiness	Scheme		Central Subsystem		
Description:		in, Cells 0 & 1,	2	Add	Remove	Modify
	MyBusiness	-1	2	Domains		
				Remove Identity	EFILUNS	Lock Hardware
Optionally, a Do When a LUN is o Domain's PCI slo To select or crea To select a EFI To add data lun To define links b	imain may als connected to t ots. ate a Domain boot lun, doul s, double-clici petween fiber	o include one or mor the SAN (Storage Ar Identity, double-click ole-click the EFI LUN k the Data LUNs field channel hosts and lu	e Data LU ea Networ the Dom s field or : f or select uns conne	k), it must be linked to a Fil ain Identity field or select a select a domain and click the a domain and click the Dat cted through the SAN, sele	bre Channel Host plugged into o domain and click the Identities b he EFI LUNs button.	utton.
CellBlocks	D	Domain Identities	1	EFI LUNS	Data LUNs	LS
MYSERVER	1				<< No Data LUNs >>	
	12 T					
	ļl					
🗬 Indicates Req	uired Field.					<u></u>
🗬 Indicates Req				Cancel	Hala	
Relindicates Req	uired Field. <u>S</u> ave			Çancel	Eelp	

NovaScale 6320 Server

🕘 Scheme Mana	gemen	with SAN Dialogue de page	e Web				×
Scheme Name :	MyBu	sinessScheme		Central Subsystem			
Description:		-domain, Cells 0, 1, 2, 3 siness-1	~	<u>A</u> dd Domains	Remove	Mo	dify
				Remove Identity	EFILUNS][Lg	ck Hardware
Optionally, a Do When a LUN is o Domain's PCI sh	imain m connec ots.		Data LI a Netwo	JNs. rk), it must be linked to a	Fibre Channel Host plugged into one of		
To select a EFI To add data lun To define links t	boot lu s, dout petwee	n, double-click the EFI LUNs ble-click the Data LUNs field (h fiber channel hosts and lur	field or or selec is conne	select a domain and clic t a domain and click the ected through the SAN, s			
CellBlocks	D	Domain Identities		EFI LUNS	Data LUNs	L	S
MYSERVER					< No Data LUNs >>		
Relndicates Req	juired F	ïeld.					
21	Sav	re,		Cancel	Help		
4							

Figure 163. Scheme Management dialog - example 1

8. Double-click the empty **D1 Identities** field. The **Identities List** dialog opens.

Identity Dialogue de entral Subsystem : MY			Current Identity : none
elect an Identity from the	e list and click OK to apply (or click New to create a n	ew identity.
Identities		Description	
MyBusiness-1	Time zone: Central Ameri	ca	A
MyNewIdentity-1			
MyNewIdentity-2			
MyOperations-00	Default identity used in th subsystem MYSERVER	e single domain containg all	hardware of the central
)>
New	<u></u> K	Cancel	<u>H</u> elp

Figure 164. Identities list dialog - example 1

9. If the required identity is in the list, go to Step 12.

If you want to create a new identity for this domain, click **New** to open the **Create New Identity** dialog. See *Creating a Domain Identity*, on page 5-47 for details.

10. Complete the Name, Description, Domain Settings, Management Parameters, Multithreading Mode, HMMIO Space, Licensing Number and Machine Check fields.

🕙 Identity Dial	ogue de page Web	×							
	Create a New Identity								
Domain identity n	ame is used to uniquely identify a domain.								
Identity Name :	MyBusiness-1								
Description :	Time zone: Central America								
Domain Setting Select the Oper Operating Syste	ating System and Version to be used by the domain to run your activities.								
Management F Enter the Netwo									
Network Name :	MyBusiness-1Net								
IP Address :	123.123.12.1								
URL:	http://www.MyBusiness-1Web.com								
CPU Paramete This option is o Monothread	nly applicable to multithreading capable CPUs.								
1/2===257	D Space emory addressing extension if supported by your hardware and Operating System. gap above 4 GB								
Licensing Num Serial Number :	XAN-YYY-12345 Stension: 11 Licensing Number: XAN-YYY-12345/11								
Machine Check	n Machine Check Reset (Option reserved for use by Support personnel)								
<u></u>	<u>Cancel</u>								

Figure 165. Create new identity dialog - example 1

- 11. Click OK. The new identity appears in the Identities List dialog.
- 12. Select the required identity from the list of available identities and click **OK** to return to the **Scheme Management** dialog. The selected identity is now displayed in the **Domain Identities** field.

13.Double–click the **EFI LUNs** field. The **Select EFI LUN** dialog opens, allowing you to choose the required EFI Boot LUN from the list of available LUNs.

Central Subsystem : MYSER Each Domain must have an I Boot LUN from the list and cl	EFI Boot LUN or		an Operat	ing Syste	m has bee	Current EFI LUN :Noi n installed. Select the required EF
Available EFI LUNs :	ick ON to apply.					
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
SAN: FDA1300						
C LUN1	0000	RAID1	15.0GB	No	No	
LUN2	0000	RAID1	15.0GB	No	No	
Local: MYSERVER						
WYSERVER_OLUO		Local CELL_0		Yes	Yes	Default LUN attached to CELL_0 in the central subsystem MYSERVER
WYSERVER_OLU1		Local CELL_1		No	No	Default LUN attached to CELL_1 in the central subsystem MYSERVER
		1	13 13			Default LUN attached to CELL 2 in

Figure 166. Select EFI LUN dialog - example 1

14. Select the required EFI Boot LUN from the list of available LUNs and click **OK** to return to the **Scheme Management** dialog. The selected LUN is now displayed in the **EFI LUNs** field.

As the selected LUN is a SAN LUN, the **Status** icon remains red and the **No Link** icon $\frac{1}{2}$ appears.

15.Double–click the **Data LUNs** field. The **Select Data LUN** dialog opens, allowing you to choose the required Data LUNs from the list of available LUNs.

16.Select the required Data LUNs from the list of available LUNs and click **Add** to move the selected Data LUNs to the **Data LUNs selected** list.

1. Contract of the second s	RVER					Identity : MyBusiness
Each Domain must have an	EEI Root I UN or	which	an Onerat	ina Queta	m has been inst	holler
Optionally, each Domain ma						ancu.
o view Data LUN details, s						
o allocate a Data LUN to a o link a Data LUN on the S						tton
o remove a Data LUN from						
ata luns available:						Details
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
AN: FDA1300						1
🛃 LUN3	0000	RAID1	15.0GB	No	No	
😓 LUN4	0001	RAID5	10.0GB	No	No	
🛃 LUN5	0002	RAID5	10.0GB	No	No	
🛃 LUN7	0002	RAID5	10.0GB	No	No	
🛃 LUN8	0003	RAID5	1.0GB	No	No	
🛃 LUN9	0004	RAID5	33.2GB	No	No	
LUN9	0004	RAID5	33.2GB	No	No	
		Add	33.2GB	No		Link Details.
Local: MYSERVER			33.20B	y		
ocal: MYSERVER Data luns selected: Name	LUN	Add		A Rei	move	Link Details.
Local: MYSERVER	LUN	Add		A Rei	move	Link Details.

Figure 167. Select Data LUN dialog - example 1

17.Click **OK** to return to the **Scheme Management** dialog. **Data LUN set** is now displayed in the **Data LUNs** field.

The **Status** icon remains red and the **No Link** icon is displayed. You must now link the selected EFI and Data LUNs to the Fibre Channel Host you want to use to access these LUNs.

18.Click **Domains** \rightarrow **Link** to open the **Link LUNs to HBA** dialog.

Central Subsystem : MYSERVER			Identity : MyBusiness-1
When a LUN is connected to the SAN Domain's PCI slots.	I (Storage Area Network)	, it must be linked to at least one Fibre	Channel Host plugged into one of the
o establish the Primary Link betwee	n a LUN and a Fibre Cha	annel host, select the LUN from the list	and click the Set Primary Link button.
		nd Fibre Channel Host. To establish tr edundant check box and click the Set Set Primary Link	ne Secondary Link between a LUN and a Secondary Link button. Set Secondary Link
LUN Name	Redundant	Primary Link	Secondary Link
LON Name			
		MODULE_0/IOC_0/PCISLOT_1	MODULE_0/IOC_1/PCISLOT_1
LUN1	>	MODULE_0/IOC_0/PCISLOT_1 MODULE_0/IOC_0/PCISLOT_1	MODULE_0/IOC_1/PCISLOT_1 MODULE_0/IOC_1/PCISLOT_1
LUN10 LUN6			
LUN1		MODULE_0/IOC_0/PCISLOT_1	MODULE_0/IOC_1/PCISLOT_1
LUN1		MODULE_0/IOC_0/PCISLOT_1	MODULE_0/IOC_1/PCISLOT_1
LUN1		MODULE_0/IOC_0/PCISLOT_1	MODULE_0/IOC_1/PCISLOT_1

Figure 168. Link LUN to HBA dialog - example 1

19. Select the first LUN in the list and select the **Redundant** mode.

You are informed that dedicated software is required to enable this mode and you are requested to confirm your choice. Click **OK** to confirm.

20. Click **Set Primary Link** to define the main access path to the SAN. The **Select HBA** dialog opens, allowing you to select the domain PCI slot you want to use to access the LUN.

🕙 Select an HBA Dialogue de pa	age Web	X
Central Subsystem : MYSERVER Identity :	र	
LUN: LUN1		
Select the required PCI Slot to e the Fibre Channel Host.	stablish the primary link between LUN L	JN1 and
PCI Slots	WWN Linked	
E CELL_0: MODULE_0/IOC_0		
	No	
	No No	E
	No	
PCISLOT_4	No	
PCISLOT_5	No	
	No	
E CELL_1: MODULE_0/IOC_1		
	No	
PCISLOT_2	No	
	No	
OK	Cancel	

Figure 169. Select HBA dialog - example 1

- 21. Select the required PCI slot and click OK. The primary link is now set.
- 22. Click Set Secondary Link to define the backup access path to the SAN.
- 23. Select the required PCI slot and click **OK**. The secondary link is now set.

24. Repeat Steps 19 to 23 for each LUN in the list and click $OK \rightarrow Apply$ to return to the

Scheme Management dialog. The Status icon turns green and the Linked icon appears.

25. Click **Save**. The domain configuration scheme is now available for domain management.

Creating a Mono–Domain Scheme Using a Selection of Server Resources

I Notes:

- A domain configuration scheme can include more than one Central Subsystems. If you have more than one Bull NovaScale Server, see *Configuring and Managing Extended Systems*, on page 5-108.
- For more information about scheme and identity configuration options, refer to:
 - Assessing Configuration Requirements, on page 5-31
 - Creating a Domain Configuration Scheme, on page 5-33
 - Creating a Domain Identity, on page 5-48

The configuration criteria set out in the following tables is used to illustrate this example:

NovaScale 6080/6160 Server

	Scheme
Name	MyOffpeakProdScheme
Description	Mono-domain, Cell 1, MyOffpeakProd
Central Subsystem(s)	MyServer
Number of domains	1
Domain size	1 cell: Cell 1
EFI boot LUNs	SAN: FDA1300 LUN1
Data LUNs *	SAN: FDA 1300 LUN10, LUN6
Fibre channel hosts *	Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1
IO resource location	0IOB1
Resource access	All resources unlocked
	Domain Identity
Name	MyOffpeakProd
Description	Time zone: Paris
Operating System	Linux
Domain network name	MyOffpeakProdNet
Domain IP address	124.124.1.0
Domain URL	http://www.MyOffpeakProdWeb.com
Domain threading mode	Monothreading
HMMIO space	Disabled
Licensing number	XAN-YYY-12345/12
Substitute mode	Enabled
Halt on machine check reset	Disabled

* Reserved for systems connected to a Storage Area Network (SAN).

Table 45. Scheme configuration criteria – example 2 – mono-module server

NovaScale 6320 Server

	Scheme
Name	MyOffpeakProdScheme
Description	Mono-domain, Cell 1, Boot 0Lun1, MyOffpeakProd
Central Subsystem(s)	MyServer
Number of domains	1
Domain size	1 cell: Cell 1
EFI boot LUNs	SAN: FDA1300 LUN1
Data LUNs *	SAN: FDA 1300 LUN10, LUN6
Fibre channel hosts *	Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1
IO resource location	0IOB1
Resource access	All resources unlocked
	Domain Identity
Name	MyOffpeakProd
Description	Time zone: Paris, Boot path: EFI 0Lun1
Operating System	Linux
Domain network name	MyOffpeakProdNet
Domain IP address	124.124.1.0
Domain URL	http://www.MyOffpeakProdWeb.com
Domain threading mode	Monothreading
HMMIO space	Disabled
Licensing number	XAN-YYY-12345/12
Substitute mode	Enabled
Halt on machine check reset	Disabled

* Reserved for systems connected to a Storage Area Network (SAN).

Table 46. Scheme configuration criteria – example 2 – bi–module server

To create a mono-domain scheme using a part of server resources:

- 1. Check that the required hardware resources are available (at least one IOB and one QBB are required for each server domain) and that the domain Operating System supports the required hardware resources (CPUs, DIMMs, ...).
- 2. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Schemes to open the Schemes Management pane.
- 3. Click **New** to open the **Scheme Creation** dialog.
- 4. Complete the Scheme and Description fields.

Description:	MyOffpeakProdScheme		Central Subsystem		
	Mono-domain, Cell1,	3	Add	Remove	<u>M</u> odify.
	MyOffpeakProd	*	Domains		
			Remove Identity	EFILUNS Data LU	JNs Link Lock Hardware
				- M	
Welcome to the	he Domain Scheme wizard.				
Vour server (Central Subsystem is designed	t around a fli	evible, cell-based archit	ecture allowing dynamic r	partitioning into up to four
	ependent domains.	arouna a n	ondie, cen basea arenne	ectore anowing aynamic p	Sarabolining into ap to toar
A domain is s	eet of bardware and coffware	recources	enanning one or more (Central Subsystem cells	managed by a single Operating
System instar		resources,	spanning one of more (sentral adosystem cens, i	managed by a single Operating
A Domain Col	neme is the template used to (dofino ond m	anage a set of domains	that can be active simul	tanaqualu
A Domain Sci	neme is the template used to t	aenne anu n	lanage a set of domains	s triat cari de active simul	laneuusiy.
Complete the	Scheme Name and optionaly	Description	fields and click Add to b	egin domain scheme cre	ation.
SIndicates Reg	uired Field				
🕏 Indicates Req	uired Field.				
🖲 Indicates Req	uired Field.		Cancel		Help
Indicates Req			Cancel		Help
🕏 Indicates Reqi			Cancel		Help

Figure 170. Scheme creation dialog – example 2

 Click Central Subsystem → Add to select the Central Subsystem to be used by the domain configuration scheme. The Central Subsystem Configuration dialog opens.

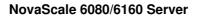


	figure Central Sub			page Web		
	ntral Subsystem	1	1	himmer	Ctatus	
	ubsystem Name	Cells	CPU	Memory	Status	
MYSERVER		2	16	0	PRESENT	
Each Control C						<u> </u>
Each Central S	Subsystem can be	e alvidea into	up to 2 p	antitions.		
1- Use the drop	odown list to sele	ct the require	d numbe	r of partitio	ons.	
Number of P	artitions: 2	-				
2- Select a con	figuration and cli	ck OK to con	tinue.			
MODULE 1						
MODULE_0						
	Partition 1	Partition 2				
	CELL_0 Total	CELL 1 Total				
		-				
CPU Memory (MB)	8 8	8 8				
wentory (wB)	0 0	0 0				
0	K	Ca	ncel		Help	

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		-	-	page Wel	de la constante		2
	· · · ·	m from the list					
Central Sul	bsystem Name	e Cells	CPU	Memory	Stati	IS	
MYSERVER		4	32	0	PRESE	ENT	<u></u>
							-
Each Central Su	bsystem can l	be divided into	up to 4 p	artitions.			
	-						
1- Use the dropd	lown liet to col	act the require	d numbo	r of portiti			
		ect the require	u numbe	i oi partiti	uns.		
Number of Pa	rtitions: 14						
2- Select a confi	aurotion and a	liek OK te eerd	linua				
	guration and c		linue.				
MODULE 1							
_							
MODULE_0							
MODOLE_0							
	Partition 1	Partition 2	n -	tition 3	Partitio		
	1					-	
	CELL_O Total	CELL_1 Total	CELL	_2 Total	CELL_3	Total	
CPU	8 8	8 8		8 8	8	8	
Memory (MB)	0 0	0 0		0 0	0	0	
<u>0</u> K		Co	ncel			Hole	
	<u>`</u>		icer			<u>H</u> elp	

Figure 171. Central Subsystem configuration dialog - example 2

- 6. Check that the required Central Subsystem is highlighted and select 2 (mono-module server) or 4 (bi-module server) in the **Number of Parts** dropdown list.
- 7. Select the required partition configuration and click **OK** to return to the **Scheme Management** dialog.
- 8. As you want this scheme to only use Cell 1, you must remove the domains using the other cells. Hover the mouse over the cells represented in the **CellBlocks** diagram to identify the domain using Cell 1. **D2** is using Cell 1.

9. Click $D1 \rightarrow Domains \rightarrow Remove$ and click OK to remove the unwanted domain from the scheme.

🛃 Scheme Man	-		Control Coltonation				
cheme Name :	MyOffpeakProdSch	eme 💎	Central Subsystem	-		-	La de la
escription:	Mono-domain, Cel MyOffpeakProd	n, 🧧	<u>A</u> dd Domains	Ľ	Remove	L	Modify
			Remove Identity	EFILUNS	Data LUNs	Link	Lock Hardware
Optionally, a Do When a LUN is Domain's PCI sl To select or cre To select a EFI To add data lur	main may also inclu connected to the SA ots. ate a Domain Identit boot lun, double-clic is, double-click the E	de one or more Data L N (Storage Area Netwo y, double-click the Dor k the EFI LUNs field or vata LUNs field or selec	main must have an Identi UNS. ork), it must be linked to a nain Identity field or selec select a domain and clicl ct a domain and click the ected through the SAN. s	Fibre Channe t a domain and the EFI LUNs Data LUNs but	I Host plugged in I click the Identiti button. ton.	es button.	le
			a domain, select the doma			button.	
	exclude some hardw					button.	LS
o temporarily e	exclude some hardw	are components from a	a domain, select the doma	in and click th	e Lock Hardware	button.	L S
o temporarily o CellBlocks	exclude some hardw	are components from a	a domain, select the doma EFI LUNs	in and click th	e Lock Hardware Data LUNs	button.	
o temporarily o CellBlocks	exclude some hardw D D D D D	are components from a ain Identities Microsoft Internet I O you want	a domain, select the doma EFI LUNs	ain and click th	e Lock Hardware Data LUNs No Data LUNs >>	button.	
CellBlocks	exclude some hardw D D D D D	are components from a ain Identities Microsoft Internet I O you want	e domain, select the doma EFI LUNS Explorer to delete this domain ? elete, or click Cancel to exit this o	ain and click th	e Lock Hardware Data LUNs No Data LUNs >>	button.	
CellBlocks	exclude some hardw D D D D D	are components from a ain Identities Microsoft Internet I Do you want Click OK to d	EFILUNS EFILUNS Explorer to delete this domain ? elete, or click Cancel to exit this o	ain and click th	e Lock Hardware Data LUNs No Data LUNs >>	button.	
CellBlocks	D Dom	are components from a ain Identities Microsoft Internet I Do you want Click OK to d	EFILUNS EFILUNS Explorer to delete this domain ? elete, or click Cancel to exit this o	ain and click th	e Lock Hardware Data LUNs No Data LUNs >>	button.	
Cotemporarily (CellBlocks MYSERVER	D Dom	are components from a ain Identities Microsoft Internet I Do you want Click OK to d	EFILUNS EFILUNS Explorer to delete this domain ? elete, or click Cancel to exit this o	ain and click th	e Lock Hardware Data LUNS No Data LUNS >> No Data LUNS >>	button.	

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🙆 Scheme Man					E
Scheme Name :	MvOffpeakProdScheme		Central Subsystem		
Description:	Mono-domain, Cell1, MyOffpeakProd		Add Domains	Remove	Modify
			<u>Remove</u> Identity EF	ILUNS Data LUNS Link	Lock Hardware
Optionally, a Do	omain may also include of connected to the SAN (SI	ne or more Data L		d an EFI Boot LUN. e Channel Host plugged into one	of the
To select a EFI To add data lun To define links t	boot lun, double-click the is, double-click the Data I between fiber channel ho	e EFI LUNs field or LUNs field or sele ists and luns conr	r select a domain and click the l ct a domain and click the Data l sected through the SAN, select		on.
CellBlocks	D Domain Id	entities	EFI LUNs	Data LUNs	LS
MYSERVER	1			<< No Data LUNs >>	
	2	Microsoft Intern	et Explorer	<< No Data LUNs >>	
	3		want to delete this domain ?	<< No Data LUNs >>	
	4		to delete, or click Cancel to exit this dialo	og. << No Data LUNs >>	
			OK Annuler		
m ha allo a ta a mara	uired Field.				
Tindicates Req	E construction and the				
Tindicates Rec	Save		Cancel	Help]

Figure 172. Remove domain confirmation dialog – example 2

10. Repeat Step 11 for $\ensuremath{\text{D3}}$ and $\ensuremath{\text{D4}}$, where applicable.

12. Now, only one domain appears in the Scheme Management dialog.

The **Status** icon is red because a **Domain Identity** and an **EFI LUN** are required to complete domain configuration.

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🐔 Scheme Man	agaman	t with SAN Dialogue de page	e Web					
Scheme Name :	MyOff	peakProdScheme	ę	Central Subsystem				
escription:		-domain, Cell1, 🦉 🤌		<u>A</u> dd Domains		Remove		Modify
				Remove Identity	EFI LUNS	Data LUNs	Lin <u>k</u>	Lock Hardwar
Optionally, a Do Vhen a LUN is o Oomain's PCI slo O select or crea O select a EFI I O add data lun O define links t	main m connect ots. ate a D boot lur s, doub betweer	n of fully configured Domains ay also include one or more f ed to the SAN (Storage Area ormain Identity, double-click th n, double-click the EFI LUNs field o nfiber channel hosts and luns some hardware components	Data Ll Netwo ie Dom ield or select sconne	JNS. rk), it must be linked to a ain Identity field or selec select a domain and click t a domain and click the cited through the SAN, a	a Fibre Channe et a domain an k the EFI LUNs Data LUNs bu select a domain	el Host plugged i d click the Identi s button. tton. n and click the L	ties button. ink button.	he
CellBlocks	D	Domain Identities	num a	EFILUNS		Data LUNs		LS
MYSERVER	1		I.	Dell/Antessex	< <	No Data LUNs >>		
Indicates Req	uired F	ield.						<u>~</u>
	<u>S</u> av	8		Cancel			<u>H</u> elp	
N								

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heme Name :	MyOff	peakProdScheme	1	Central Subsystem		
scription:		- I-domain, Cell1, fpeakProd	~ ~	Add	Remove	Modify
	pariyor	ipeaki rou		Domains Remove Identity E	FILUNS Data LUNS Lin	k Lock Hardware
				Bemove Identity E	FILONS Data LONS LIN	E Lock Hardware
nen a LUN is (imain's PCI sl select or cre select a EFI add data lun	connec ots. ate a D boot lu is, dout	omain Identity, double-click n, double-click the EFI LUNs ble-click the Data LUNs field	the Dom field or or selec	rk), it must be linked to a Fibr nain Identity field or select a d select a domain and click the t a domain and click the Data		utton.
	exclude	some hardware componen		domain, select the domain a	nd click the Lock Hardware butb Data LUNs	
CellBlocks	D	Domain Identities		EFILUNS	Data LONS	LJ
	D	Domain Identities	1	EFILONS	<< No Data LUNS >>	
	Terrate and the	Domain Identities		EFILUNS		
WYSERVER	Terrate and the	Domain Identities		EFILONS		
MYSERVER	Terrate and the	Domain Identities		EFILONS		
MYSERVER	1			EFILONS		
AYSERVER	1	ield.		Qancel		

Figure 173. Scheme Management dialog - example 2

13. Double-click the empty D1 Identities field. The Identities List dialog opens.

entral Subsystem : MY	SERVER	Current Identity : I	none
·····	e list and click OK to apply or click Ne		
Identities	De	escription	
MyBusiness-1	Time zone: Central America		^
MyNewIdentity-1			
MyNewIdentity-2			
MyOffpeakProd	Time zone: Paris		
MyOperations-00	Default identity used in the single do subsystem MYSERVER	main containg all hardware of the central	
	nu		>
New	<u>OK</u>	Cancel Help	

Figure 174. Identities list dialog - example 2

14. If the required identity is in the list, go to Step 17.

If you want to create a new identity for this domain, click **New** to open the **Create New Identity** dialog. See *Creating a Domain Identity*, on page 5-47 for details.

15.Complete the Name, Description, Domain Settings, Management Parameters, Multithreading Mode, HMMIO Space, Licensing Number and Machine Check fields.

🛃 Identity Diale	ogue de page Web. 🛛 🛛 🔀
	Create a New Identity
Domain identity n	ame is used to uniquely identify a domain.
Identity Name :	MyOffpeakProd
Description :	Time zone: Paris
Domain Setting	(S
Select the Oper	ating System and Version to be used by the domain to run your activities.
Operating Syste	em : Linux 💟 Version :
	arameters rk Name and IP address to be used by System Management software to access the domain. o be used by a Web browser to access the domain Web site.
Network Name :	MyOffpeakProdNet
IP Address :	124.124.1.0
URL:	http://www.MyOffpeakProdWeb.com
CPU Paramete This option is of O Monothread	nly applicable to multithreading capable CPUs.
	D Space emory addressing extension if supported by your hardware and Operating System. jap above 4 GB
Licensing Numi Serial Number :	XAN-YYY-12345 Sttension: 12 Licensing Number: XAN-YYY-12345/12
Machine Check Force Halt o	n Machine Check Reset (Option reserved for use by Support personnel)
	<u>Cancel</u> <u>Help</u>

Figure 175. Create new identity dialog - example 2

16.Click OK. The new identity appears in the Identities List dialog.

- 17. Select the required identity from the list of available identities and click **OK** to return to the **Scheme Management** dialog. The selected identity is now displayed in the **Domain Identities** field.
- 18.Double–click the **EFI LUNs** field. The **Select EFI LUN** dialog opens, allowing you to choose the required EFI Boot LUN from the list of available LUNs.

Central Subsystem : MYSER Each Domain must have an t Boot LUN from the list and cli	EFI Boot LUN or		an Operat	ing Syste	m has bee	Current EFI LUN : No
Available EFI LUNs :		r:				
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
SAN: FDA1300						2
😨 LUN1	0000	RAID1	15.0GB	No	No	
🚾 LUN2	0000	RAID1	15.0GB	No	No	
Local: MYSERVER						
WYSERVER_0LU0		Local CELL_0		Yes	Yes	Default LUN attached to CELL_0 in the central subsystem MYSERVER
WYSERVER_0LU1		Local CELL_1		No	No	Default LUN attached to CELL_1 in the central subsystem MYSERVER
		1	3			Default I I N attached to CELL 2 in 🖺

Figure 176. Select EFI LUN dialog - example 2

19.Select the required EFI Boot LUN from the list of available LUNs and click OK to return to the Scheme Management dialog. The selected LUN is now displayed in the EFI LUNs field.

As the selected LUN is a SAN LUN, the **Status** icon remains red and the **No Link** icon \mathbb{F}_{a} appears.

20.Double–click the **Data LUNs** field. The **Select Data LUN** dialog opens, allowing you to choose the required Data LUNs from the list of available LUNs.

21.Select the required Data LUNs from the list of available LUNs and click **Add** to move the selected Data LUNs to the **Data LUNs selected** list.

Central Subsystem : MYSE	RVER					Identity : MyBusiness
Each Domain must have an	EELBoot LUN or	which:	an Onerat	ina Syste	m has heen inst	falled
Optionally, each Domain ma	y have one or m	ore Dat	a LUNs for	data sto	rage.	
To view Data LUN details, se To allocate a Data LUN to a						
o link a Data LUN on the S/						tton.
o remove a Data LUN from	a Domain, selec	t the Da	ata LUN a	nd click th	ne Remove but	ton.
)ata luns available:						Details
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
SAN: FDA1300						2
LUN3	0000	RAID1	15.0GB	No	No	
🛃 LUN4	0001	RAID5	10.0GB	No	No	
EUN5	0002	RAID5	10.0GB	No	No	
ELUN7	0002	RAID5	10.0GB	No	No	
🛃 LUN8	0003	RAID5	1.0GB	No	No	
	0004	RAID5	33.2GB	No	No	
	0004	RAID5	33.2GB	No	No	
LUN9 Local: MYSERVER			33.2GB			
		Add	33.2GB	No		
			33.2GB			Link Details
ocal: MYSERVER			33.20B			
ocal: MYSERVER Data luns selected: Name SAN: FDA1300	LUN Number	Add	Capacity	A Rei	MDVE	Link Details
Local: MYSERVER	LUN	Add		A Rei	move	Link Details.

Figure 177. Select Data LUN dialog - example 2

22.Click **OK** to return to the **Scheme Management** dialog. **Data LUN set** is now displayed in the **Data LUNs** field.

The **Status** icon remains red and the **No Link** icon is displayed. You must now link the selected EFI and Data LUNs to the Fibre Channel Host you want to use to access these LUNs.

23.Click **Domains** \rightarrow **Link** to open the **Link LUNs to HBA** dialog.

🗐 Link Luns to HBA Dialogue de page	Web		
Central Subsystem : MYSERVER			Identity : MyOffpeakProd
When a LUN is connected to the SAN Domain's PCI slots.	(Storage Area Network), it n	ust be linked to at least one Fibre Ch	annel Host plugged into one of the
To establish the Primary Link between	a LUN and a Fibre Channe	I host, select the LUN from the list and	I click the Set Primary Link button.
For enhanced redundancy, each LUN Fibre Channel host, select the LUN fro		ndant check box and click the Set Sec	ondary Link button.
LUN Name	Redundant	Set Primary Link Primary Link	Set Secondary Link Secondary Link
LUM			<u>A</u>
LUN10			
LUN6			
K			<u>></u>
	OK	Cancel]

Figure 178. Link LUN to HBA dialog - example 2

24. Select the first LUN in the list and click **Set Primary Link** to define the main access path to the SAN. The **Select HBA** dialog opens, allowing you to select the domain PCI slot you want to use to access the LUN.

🕘 Select an HBA Dialogue de pa	ige Web	
Central Subsystem : MYSERVER Identity : LUN : LUN1	ł	
Select the required PCI Slot to e the Fibre Channel Host.	stablish the primary link between	LUN LUN1 and
PCI Slots	WWN	Linked
ELL_0: MODULE_0/IOC_0		
PCISLOT_1		No
PCISLOT_2		No
PCISLOT_3		No
PCISLOT_4		No
PCISLOT_5		No
		No
E CELL_1: MODULE_0/IOC_1		
		No
PCISLOT_2		No
PCISLOT_3		No
OK.	Cancel	

Figure 179. Select HBA dialog - example 2

25. Select the required PCI slot and click OK. The primary link is now set.

26. Repeat Steps 19 to for each LUN in the list and click $OK \rightarrow Apply$ to return to the

Scheme Management dialog. The Status icon turns green and the Linked icon appears.

27. Click Save. The domain configuration scheme is now available for domain management.

Creating a Multi–Domain Scheme Using All Server Resources

Dotes:

- A domain configuration scheme can include more than one Central Subsystems. If you have more than one Bull NovaScale Server, see *Configuring and Managing Extended Systems*, on page 5-108.
- For more information about scheme and identity configuration options, refer to:
 - Assessing Configuration Requirements, on page 5-31
 - Creating a Domain Configuration Scheme, on page 5-33
 - Creating a Domain Identity, on page 5-48

The configuration criteria set out in the following tables is used to illustrate this example:

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	Scheme
Name	MyProd_PayrollScheme
Description	Multi-domain, Cells 0 & 1, MyProduction & MyPayroll
Central Subsystem(s)	MyServer
Number of domains	2
Domain size	1 cell per domain: Cell 0 for MyProduction (Domain 1) Cell 1 for MyPayroll (Domain 2)
EFI boot LUNs	SAN: FDA 1300 LUN1 for MyProduction Local: 0Lun1 for MyPayroll
Data LUNs *	SAN: FDA 1300 LUN10, LUN6 for MyProduction SAN: FDA 1300 LUN4 for MyPayroll
Fibre channel hosts *	Primary Link: Cell_0: Module_0/IOB_0/PCISLOT_1 for MyProduction Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 for MyPayroll
IO resource location	0IOB0 for MyProduction 0IOB1 for MyPayroll
Resource access	All resources unlocked
	Domain Identity 1
Name	MyProduction
Description	Time zone: Vladivostok
Operating System	Windows
Domain network name	MyProductionNet
Domain IP address	121.121.12.1
Domain URL	http://www.MyProductionWeb.com
Domain threading mode	Monothreading
HMMIO space	Disabled
Licensing number	XAN-S11-99999/13
Substitute mode	Enabled
Halt on machine check reset	Disabled
	Domain Identity 2
Name	MyPayroll
Description	Time zone: Paris
Operating System	Linux
Domain network name	MyPayrollNet
Domain IP address	122.122.1.0
Domain URL	http://www.MyPayrollWeb.com
Domain threading mode	Monothreading
HMMIO space	Enabled
Licensing number	XAN-S11-99999/14
Substitute mode	Enabled
Halt on machine check reset	Disabled

* Reserved for systems connected to a Storage Area Network (SAN) Table 47. Scheme configuration criteria – example 3 – mono–module server

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	Scheme
Name	MyProd_PayrollScheme
Description	Multi-domain, Cells 0,1,2&3, MyProduction & MyPayroll
Central Subsystem(s)	MyServer
Number of domains	2
Domain size	Cells 0, 1 & 2 for Domain 1 Cell 3 for Domain 2
EFI boot LUNs	SAN: FDA 1300 LUN1 for MyProduction Local: 0Lun3 for MyPayroll
Data LUNs *	SAN: FDA 1300 LUN10, LUN6 for MyProduction SAN: FDA 1300 LUN4 for MyPayroll
Fibre channel hosts *	MyProduction: Primary Link: Cell_0: Module_0/IOB_0/PCISLOT_1 MyPayroll: Primary Link: Cell_3: Module_1/IOB_1/PCISLOT_1
IO resource location	0IOB0 mandatory, 0IOB1 & 1IOB0 optional, for MyPro- duction 1IOB1 mandatory for MyPayroll
Resource access	All resources unlocked
	Domain Identity 1
Name	MyProduction
Description	Time zone: Vladivostok
Operating System	Windows
Domain network name	MyProductionNet
Domain IP address	121.121.12.1
Domain URL	http://www.MyProductionWeb.com
Domain threading mode	Monothreading
HMMIO space	Disabled
Licensing number	XAN-S11-99999/13
Substitute mode	Enabled
Halt on machine check reset	Disabled
	Domain Identity 2
Name	MyPayroll
Description	Time zone: Paris
Operating System	Linux
Domain network name	MyPayrollNet
Domain IP address	122.122.1.0
Domain URL	http://www.MyPayrollWeb.com
Domain threading mode	Monothreading
HMMIO space	Enabled
Licensing number	XAN-S11-99999/14
Substitute mode	Enabled
Halt on machine check reset	Disabled

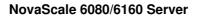
* Reserved for systems connected to a Storage Area Network (SAN) Table 48. Scheme configuration criteria – example 3 – bi–module server To create a multi-domain scheme using all server resources:

- 1. Check that the required hardware resources are available (at least one IOB and one QBB are required for each server domain) and that the domain Operating System supports the required hardware resources (CPUs, DIMMs, ...).
- 2. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Schemes to open the Schemes Management pane.
- 3. Click **New** to open the **Scheme Creation** dialog.
- 4. Complete the Scheme and Description fields.

🕙 Scheme Mana	gement with SAN Dialogue de	page Web			
Scheme Name : Description:	MyProd_PayrollScheme Multi-domain, Cells 0, 1, 2 & 3 MyProduction & MyPayroll	3.	Central Subsystem Add Domains Bemove Identity	Remove	Modify s Lin <u>k</u> Lock Hardware
Your server (physically inc A domain is a	the Domain Scheme wizard. Central Subsystem is designed Jependent domains. a set of hardware and software i				-
	nce. heme is the template used to da e Scheme Name and optionaly C		-		
🗬 Indicates Req	uired Field. Save		Cancel		
<u>ح</u> ا			10.5		•

Figure 180. Scheme creation dialog - example 3

5. Click **Central Subsystem** → **Add** to select the Central Subsystem to be used by the domain configuration scheme. The **Central Subsystem Configuration** dialog opens.



🖉 Add and Configure Central Subsystem Dialogue de page Web								
	ntral Subsystem fr							
	ubsystem Name	Cells	CPU	Memory	Status			
MYSERVER		2	16	0	PRESENT			
						-		
Each Central S	Gubsystem can be d	livided into	up to 2 p	artitions.				
1- Use the drop	down list to select	the require	d numbe	r of partitio	ins.			
Number of P	'artitions: 🛛 🔁 💌]						
		-						
2- Select a cor	figuration and click	OK to conf	tinue.					
MODULE_1								
	6-8 6-8							
MODULE_0	24 65							
	Partition 1	Partition 2						
	CELL_0 Total CI	ELL_1 Total						
CPU	8 8	8 8						
Memory (MB)	0 0	0 0						
	ρκ	Car	ncel		Help			
		<u></u> ai						

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Central Sub Central Subsy				ains -	- Die	logue	de pa	age V	/eb			×
Each Central Subsystem can be divided into up to 4 partitions.												
 1- Use the dropdown list to select the required number of partitions. Number of Partitions: 2 												
2- Select a con	figuratior	and clic	k OK to	contir	iue.							
MODULE_1	2								2	2		
MODULE_0				3	2							
		Partitio	n 1			Partitio	on 2					
	CELL_0	CELL_1	CELL_2	Total	С	ELL_3	Total					
CPU	4	4	4	12		4	4					
Memory (MB)	0	0	0	0		0	0					
	<u>)</u> K		(<u>C</u> an	cel					<u>-</u> lelp)	

Figure 181. Central Subsystem configuration dialog – example 3

- 6. Check that the required Central Subsystem is highlighted and select **2** in the **Number of Parts** dropdown list.
- 7. Select the required partition configuration and click **OK** to return to the **Scheme Management** dialog.

The **Status** icons are red because **Domain Identities** and **EFI LUNs** are required to complete domain configuration.

NovaScale 6080/6160 Server

Scheme Man	agement	with SAN Dialogue de page Web			
Scheme Name :	MyPro	d_PayrollScheme 🦷	Central Subsystem		
Description:		omain, Cells 0, 1, 2 & 3, 🔥 duction & MyPayroll	<u>A</u> dd	Remove	Modity
			Remove Identity	EFILUNS Data LUNS Link	Lock Hardware
Optionally, a Do When a LUN is (Domain's PCI sli To select or cre To select a EFI To add data lun To define links t	main ma connecta ots. ate a Do boot lun s, doubl petween	main Identity, double-click the Dom , double-click the EFI LUNs field or e-click the Data LUNs field or selec fiber channel hosts and luns conne	JNS. rk), it must be linked to a Fi select a domain and click th t a domain and click the Da sected through the SAN, sele	ibre Channel Host plugged into one domain and click the Identities butto ne EFI LUNs button.	on.
CellBlocks	D	Domain Identities	EFILUNS	Data LUNs	LS
MYSERVER	1			<< No Data LUNs >>	
	2			<< No Data LUNs >>	
2 1					
					v 1
₹Indicates Req	uired Fi	eld.			
	Save		Cancel	Help]
<			101.1		

NovaScale 6320 Server

횐 Scheme Man				Control Colorestory		
icheme Name :	MyProd	_PayrollScheme		Central Subsystem		
escription:		omain, Cells 0, 1, 2 & 3, luction & MyPayroll	5 5	Add Domains	Remove	Modify
				Remove Identity Ef	FILUNS Data LUNS Lir	Lock Hardware
Optionally, a Do	main may	/ also include one or more	e Data LL		d an EFI Boot LUN. e Channel Host plugged into oi	ne of the
o select a EFI I o add data lun	boot lun, s, double between f	double-click the EFI LUNs -click the Data LUNs field iber channel hosts and lu	s field or s or select ins conne	elect a domain and click the a domain and click the Data cted through the SAN, select	LUNs button. a domain and click the Link bu	utton.
	exclude si	ome nardware component	ts from a	domain, select the domain ar	to click the Lock Hardware out	.on.
	D	ome nardware component	ts from a	domain, select the domain ar EFI LUNs	Data LUNs	L S
o temporarily e			ts from a			
o temporarily e CellBlocks			ts from a		Data LUNs	
Co temporarily e CellBlocks MYSERVER	D		ts from a		Data LUNs << No Data LUNs >>	
Co temporarily e CellBlocks MYSERVER	D		ts from a		Data LUNs << No Data LUNs >>	
Co temporarily e CellBlocks MYSERVER	D 2	Domain Identities	ts from a		Data LUNs << No Data LUNs >>	
Collegionality e CellBlocks MYSERVER 23 20 20 20 20 20 20 20 20 20 20 20 20 20 2	D 2	Domain Identities	ts from a		Data LUNs << No Data LUNs >>	



8. Double-click the empty **D1 Identities** field. The **Identities List** dialog opens.

4	🕈 Identity Dialogue de page	Web	X
	Central Subsystem : MYSER'	/ER	Current Identity : none
0.0	Select an Identity from the list	and click OK to apply or click New to create a new	v identity.
ļ	Identities	Description	
	⚠ MyNewIdentity-2		_
	🛆 MYOffpeakProd	Time zone: Paris	
	MyOperations-00	Default identity used in the single domain containg all ha subsystem MYSERVER	ardware of the central
	∆ MyPayroll	Paris	
	MyProduction	Time zone: Vladivostock	
	<]		
	New	<u>QK</u> <u>Cancel</u>	Help

Figure 183. Identities list dialog – example 3

If the required identity is in the list, go to Step 12.
 To create a new identity for this domain, click New to open the Create New Identity dialog. See Creating a Domain Identity, on page 5-47 for details.

10.Complete the Name, Description, Domain Settings, Management Parameters, Multithreading Mode, HMMIO Space, Licensing Number and Machine Check fields for Domain Identity D1.

🕘 Identity Dialo	ogue de page Web	
	Create a New Identity	
Domain identity na	ame is used to uniquely identify a domain.	
Identity Name :	MyProduction	
Description :	Time zone: Vladivostock	< >
Domain Setting Select the Oper- Operating Syste	ating System and Version to be used by the domain to run your activities.	
Management P Enter the Netwo		omain.
Network Name :	MyProductionNet	
IP Address :	121.121.12.1	
URL:	http://www.MyProductionWeb.com	
CPU Parameter This option is or Monothreading	nly applicable to multithreading capable CPUs.	
	D Space emory addressing extension if supported by your hardware and Operating System. gap above 4 GB	
Licensing Numb Serial Number :	XAN-YYY-12345 Z Extension: 13 Licensing Number: XAN-YYY-12345/13	
Machine Check	n Machine Check Reset (Option reserved for use by Support personnel)	
	<u>Cancel</u> <u>Help</u>	

Figure 184. Create new identity dialog - example 3

- 11. Click **OK**. The new identity appears in the **Identities List** dialog.
- 12. Select the required identity from the list of available identities and click **OK** to return to the **Scheme Management** dialog. The selected identity is now displayed in the **Domain Identities** field.
- 13. Repeat Steps 8 to 12 for **Domain Identity D2**.

14. Double–click the **D1 EFI LUNs** field. The **Select EFI LUN** dialog opens, allowing you to choose the required EFI Boot LUN from the list of available LUNs.

Central Subsystem : MYSERV	/ER					Current EFI LUN :No
Each Domain must have an E Boot LUN from the list and clii			an Operat	ing Syste	m has bee	n installed. Select the required EF
Available EFI LUNs :		1	1		1	1
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
SAN: FDA1300						8
🕱 LUN1	0000	RAID1	15.0GB	No	No	
🚾 LUN2	0000	RAID1	15.0GB	No	No	
Local: MYSERVER						
WYSERVER_OLUO		Local CELL_0		Yes	Yes	Default LUN attached to CELL_0 in the central subsystem MYSERVER
		Local CELL_1		No	No	Default LUN attached to CELL_1 in the central subsystem MYSERVER
		1 1				Default LUN attached to CELL 2 in

Figure 185. Select SAN EFI LUN dialog - example 3

15. Select the required EFI Boot LUN from the list of available SAN LUNs and click **OK** to return to the **Scheme Management** dialog. The selected LUN is now displayed in the **EFI LUNs** field.

As the selected EFI LUN is a SAN LUN, the **Status** icon remains red and the **No Link** icon appears.

16.Double–click the **D2 EFI LUNs** field. The **Select EFI LUN** dialog opens, allowing you to choose the required EFI Boot LUN from the list of available Local LUNs.

Select an EFI LUN Dialogue d Central Subsystem :MYSERVER	e page Web	,				Current EFI LUN : No) ne
Each Domain must have an EFI B Boot LUN from the list and click C			an Operat	ing Syste	m has bee	en installed. Select the required EF	-1
Available EFI LUNs :							
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description	
SAN: FDA1300						i i i i i i i i i i i i i i i i i i i	~
🖳 LUN1	0000	RAID1	15.0GB	No	No		
쪑 LUN2	0000	RAID1	15.0GB	No	No		
Local: MYSERVER							
T MYSERVER_0LU1		Local CELL_1		No	No	Default LUN attached to CELL_1 in the central subsystem MYSERVER	
AND ALLENNE ALLEN	And Sh	al a la	11111111	a Saland	19. Sel (2)		× .
	ОК				Ca	ncel	

Figure 186. Select Local EFI LUN dialog - example 3

As the selected EFI LUN is a Local LUN, the Status icon turns green.

17. Double–click the **D1 Data LUNs** field. The **Select Data LUN** dialog opens, allowing you to choose the required Data LUNs from the list of available LUNs.

18.Select the required Data LUNs from the list of available LUNs and click **Add** to move the selected Data LUNs to the **Data LUNs selected** list.

*	ER					Identity : MyBusiness
ach Domain must have an EF						alled.
)ptionally, each Domain may h o view Data LUN details, selei						
o allocate a Data LUN to a Do	main, select l	he Data	LUN and	I click the	Add button.	
o link a Data LUN on the SAN						
o remove a Data LUN from a	Domain, selei	t the Da	ata LUN a	na click tr	ie Remove but	ion.
ata luns available:						Details
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
AN: FDA1300						2
E LUN3	0000	RAID1	15.0GB	No	No	
E LUN4	0001	RAID5	10.0GB	No	No	
LUN5	0002	RAID5	10.0GB	No	No	
	0002	RAID5	10.0GB	No	No	
LUN8	0003	RAID5	1.0GB	No	No	
EUN9	0004	RAID5	33.2GB	No	No	
.ocal: MYSERVER	4		<u>.</u>		1	2
		Add		A Rei		
		Auu		The lite	nove	
ata luns selected:						Link Details
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
AN: FDA1300	11:				a - 10	1
	0005	RAID5	33.2GB	No	Yes Yes	
LUN10 LUN6	0001	RAID5	10.0GB	No		

Figure 187. Select Data LUN dialog - example 2

19.Click **OK** to return to the **Scheme Management** dialog. **Data LUN set** is now displayed in the **Data LUNs** field.

The **Status** icon remains red and the **No Link** icon \mathbb{E} is displayed. You must now link the selected EFI and Data LUNs to the Fibre Channel Host you want to use to access these LUNs.

20. Repeat Steps 17 to 19 for D2 Data LUNs.

As the selected Data LUN is a SAN LUN, the Status icon turns red and the No Link icon

is displayed. You must now link the selected Data LUN to the Fibre Channel Host you want to use to access this LUN.

21.Double–click the **D1 No Link** icon **to open the Link LUNs to HBA** dialog.

Central Subsystem : MYSERVER			Identity : MyOffpeakPro
When a LUN is connected to the SA Domain's PCI slots.	AN (Storage Area Network), it r	nust be linked to at least one Fibre Ch	annel Host plugged into one of the
o establish the Primary Link betwe	en a LUN and a Fibre Channe	el host, select the LUN from the list and	d click the Set Primary Link button.
		Fibre Channel Host. To establish the S ndant check box and click the Set Se	
		Set Primary Link	Set Secondary Link
LUN Name	Redundant	Primary Link	Secondary Link
LUN1			
LUN10			

Figure 188. Link LUN to HBA dialog - example 3

22. Select the first LUN in the list and click **Set Primary Link** to define the main access path to the SAN. The **Select HBA** dialog opens, allowing you to select the domain PCI slot you want to use to access the LUN.

🕘 Select an HBA Dialogue de p	age Web		X
Central Subsystem : MYSERVE Identity :	R		
LUN: LUN1			
Select the required PCI Slot to the Fibre Channel Host.	establish the primary link betwee	n LUN LU	N1 and
PCI Slots	WWN	Linked	
EELL_0:MODULE_0/IOC_0			<u> </u>
PCISLOT_1		No	
PCISLOT_2		No	E
PCISLOT_3		No	
PCISLOT_4		No	
PCISLOT_5		No	
PCISLOT_6		No	
ELL_1: MODULE_0/IOC_1			
PCISLOT_1		No	
PCISLOT_2		No	
PCISLOT_3		No	
<			
ОК	Cancel		

Figure 189. Select HBA dialog - example 3

- 23. Select the required PCI slot and click OK. The primary link is now set.
- 24. Repeat Steps 19 to 23 for each LUN in the list and click $OK \rightarrow Apply$ to return to the

Scheme Management dialog. The D1 Status icon turns green and the Linked icon appears.

- 25. Repeat Steps 21 to 23 for D2. All Status icons are green.
- 26. Click Save. The domain configuration scheme is now available for domain management.

Creating a Multi–Domain Scheme Using a Selection of Server Resources

IF Notes:

- A domain configuration scheme can include more than one Central Subsystems. If you have more than one Bull NovaScale Server, see *Configuring and Managing Extended Systems*, on page 5-108.
- For more information about scheme and identity configuration options, refer to:
 - Assessing Configuration Requirements, on page 5-31
 - Creating a Domain Configuration Scheme, on page 5-33
 - Creating a Domain Identity, on page 5-48

The configuration criteria set out in the following tables is used to illustrate this example:

NovaScale 6320 Server

NameMyTest_DevptSchemeDescriptionMulti-domain, Cells 1, 2 & 3, MyTest & MyDevptCentral Subsystem(s)MyServerNumber of domains2Domain size1 cell / 2 cells: Cell 1 for MyTest (Domain 1) Cells 2 & 3 for MyDevpt (Domain 2)EFI boot LUNsSAN: FDA 1300 LUN1 for MyTest Local: 0Lun3 for MyDevptData LUNs *SAN: FDA 1300 LUN1 for MyTest Local: 0Lun3 for MyDevptFibre channel hosts *MyTest: Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 MyDevpt: Primary Link: Cell_3: Module_1/IOB_1/PCISLOT_1 Secondary Link: Cell_2: Module_1/IOB_0/PCISLOT_1IO resource location0IOB0 for MyProduction 1IOB1 for MyPayrollResource accessCell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3Domain network nameMyTestDomain network nameMyTestDomain IP address126.126.1.2Domain IP address126.126.1.2Domain IP addressDisabledLinuxDomain threading modeHatton machine check resetDisabledDomain IP address126.126.1.2Domain IP address126.126.1.2Domain IP address126.126.1.2Domain threading modeMyDevptHatton machine check resetDisabledDomain network nameMyDevptDomain IP address126.126.1.0Domain IP address126.126.1.0Domain network nameMyDevptDomain network nameMyDevptDomain IP address126.126.1.0Domain network nameMyDevptDomain IP address126.126	Scheme					
Central Subsystem(s) MyServer Number of domains 2 Domain size 1 cell / 2 cells: Cell 1 for MyTest (Domain 1) Cells 2 & 3 for MyDevpt (Domain 2) EFI boot LUNs SAN: FDA 1300 LUN1 for MyTest Local: OLUN3 for MyDevpt Data LUNs * SAN: FDA 1300 LUN10, LUN6 for MyTest SAN: FDA 1300 LUN10, LUN6 for MyTest SAN: FDA 1300 LUN4 for MyDevpt Fibre channel hosts * MyTest: Primary Link: Cell 1: Module_0/IOB_1//PCISLOT_1 Secondary Link: Cell_2: Module_1/IOB_0/PCISLOT_1 For esource location 0IOB0 for MyProduction 1IOB1 for MyPayroll Resource access Cell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3 Domain Identity 1 Name MyTest Description Time zone: Paris Operating System Linux Domain network name MyTestNet Domain IP address 126.126.1.2 Domain IP address Disaled Licensing number XAN-S22-8888/15 Substitute mode Enabled Hait on machine cleck reset Disaled Domain IP address 126.126.1.0 Domain IP address 126.126.1.0 Domain threading mode Multithreading <	Name	MyTest_DevptScheme				
Number of domains 2 Domain size 1 cell / 2 cells: Cell 1 for MyTest (Domain 1) Cells 2 & 3 for MyDevpt (Domain 2) EFI boot LUNs SAN: FDA 1300 LUN1 for MyTest Local: 0Lun3 for MyDevpt Data LUNs * SAN: FDA 1300 LUN1 for MyTest SAN: FDA 1300 LUN4 for MyDevpt Fibre channel hosts * MyTest: Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 Secondary Link: Cell_2: Module_1/IOB_0/PCISLOT_1 Fibre channel hosts * MyTest: Primary Link: Cell_2: Module_1/IOB_0/PCISLOT_1 IO resource location 0/DB0 for MyProduction 1/OB1 for MyPayroll Resource access Cell 1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3 Domain Identity 1 Name MyTest Description Time zone: Paris Operating System Linux Domain network name MyTestNet Domain fl address 126.126.1.2 Domain fl address 126.126.1.2 Domain fl address 126.126.1.2 Domain fl Multithreading Multithreading HMMIO space Enabled Hat on machine check reset Disabled Domain Identity 2 Name NyDevpt Description <t< th=""><th>Description</th><th>Multi–domain, Cells 1, 2 & 3, MyTest & MyDevpt</th></t<>	Description	Multi–domain, Cells 1, 2 & 3, MyTest & MyDevpt				
Domain size 1 cell / 2 cells: Cell 1 for MyTest (Domain 1) Cells 2 & 3 for MyDevpt (Domain 2) EFI boot LUNs SAN: FDA 1300 LUN1 for MyTest Local: 0Lun3 for MyDevpt Data LUNs * SAN: FDA 1300 LUN1 for MyTest Local: 0Lun4 for MyDevpt Fibre channel hosts * MyTest: Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 MyDevpt: Primary Link: Cell_3: Module_1/IOB_0/PCISLOT_1 Secondary Link: Cell_2: Module_1/IOB_0/PCISLOT_1 IO resource location 0IOB for MyProduction 110B1 for MyPayroll Resource access Cell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3 Domain Identity 1 Name MyTest Description Time zone: Paris Operating System Linux Domain IP address 126.126.1.2 Domain IP address 126.126.1.2 Domain URL http://www.MyProductionWeb.com Domain IVRL http://www.MyProductionWeb.com Domain In work name MyTest Domain IVRL http://www.MyProductionWeb.com Domain URL http://www.MyProductionWeb.com Domain IVR KAN-S22-8888/15 Substitute mode Enabled Hatt on machine check reset Domain Identity 2 Name<	Central Subsystem(s)	MyServer				
Cell 1 for MyTest (Domain 1) Cells 2 & 3 for MyDevpt (Domain 2) EFI boot LUNs SAN: FDA 1300 LUN1 for MyTest Local: 0Lun3 for MyDevpt Data LUNs * SAN: FDA 1300 LUN10, LUN6 for MyTest SAN: FDA 1300 LUN4 for MyDevpt Fibre channel hosts * WiTest: Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 MyDevpt: Primary Link: Cell_3: Module_1/IOB_0/PCISLOT_1 IO resource location 0IOB0 for MyProduction 1IOB1 for MyPayroll Resource access Cell 1. Hublink 1 / Cell2, Cell3, Hublinks 2 & 3 Domain Identity 1 Name MyTest Domain Identity 1 Name MyTest Domain Identity 1 Domain network name MyTestNet Domain network name MyTestNet Domain network name MyTestNet Domain URL http://www.MyProductionWeb.com Domain URL http://www.MyProductionWeb.com Domain URL http://www.MyProductionWeb.com MyDevpt Devept Domain I dentity 2 Name MyDevpt Devept Domain URL http://www.MyPayroll Halt on machine check reset Disabled Domain I dentity 2 Name MyDevpt DeveptN </th <th>Number of domains</th> <th>2</th>	Number of domains	2				
Local: 0Lun3 for MyDevptData LUNs *SAN: FDA 1300 LUN10, LUN6 for MyTest SAN: FDA 1300 LUN4 for MyDevptFibre channel hosts *MyTest: Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 MyDevpt: Primary Link: Cell_2: Module_1/IOB_0/PCISLOT_1 Secondary Link: Cell_2: Module_1/IOB_0/PCISLOT_1IO resource location0ICB0 for MyProduction 110B1 for MyPayrollResource accessCell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3Domain Identity 1NameMyTestDescriptionTime zone: ParisOperating SystemLinuxDomain IP address126.126.1.2Domain Hreading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeFinabledHardMyDevptDomain IP address126.126.1.2Domain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHat on machine check resetDisabledDomain Identity 2NameMyDevptDomain Identity 1Domain IP address126.126.1.0Domain IP address126.126.1.0Dom	Domain size	Cell 1 for MyTest (Domain 1)				
SAN: FDA 1300 LUN4 for MyDevptFibre channel hosts *MyTest: Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 MyDevpt: Primary Link: Cell_3: Module_1/IOB_0/PCISLOT_1 Secondary Link: Cell_2: Module_1/IOB_0/PCISLOT_1IO resource location0IOB0 for MyProduction 1IOB1 for MyPayrollResource accessCell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3Domain Identity 1NameMyTestDescriptionTime zone: ParisOperating SystemLinuxDomain network nameMyTestNetDomain IP address126.126.1.2Domain Hreading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledDescriptionTime zone: ParisOperating SystemLicensing Indentity 2NameMyTestNetDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledDescriptionTime zone: ParisOperating SystemWindowsDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain IP address126.126.1.0Domain IP address12	EFI boot LUNs					
Prímary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 MyDevpt: Primary Link: Cell_3: Module_1/IOB_1/PCISLOT_1 Secondary Link: Cell_2: Module_1/IOB_0/PCISLOT_1IO resource location0IOB0 for MyProduction 1IOB1 for MyPayrollResource accessCell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3Domain Identity 1NameMyTestDescriptionTime zone: ParisOperating SystemLinuxDomain network nameMyTestNetDomain IP address126.126.1.2Domain threading modeMultithreadingHIMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHat on machine check resetDisabledOperating SystemWindowsDomain network nameMyDevptDomain Identity 2NameMyDevptDomain Identity 1MIMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHat on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain IP address126.126.1.0	Data LUNs *					
11OB1 for MyPayrollResource accessCell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3Domain Identity 1NameMyTestDescriptionTime zone: ParisOperating SystemLinuxDomain network nameMyTestNetDomain IP address126.126.1.2Domain threading modeMultithreadingHIMIO spaceEnabledLicensing numberXAN-S22-8888/15Substitute modeDisabledPoresting SystemTime zone: ParisOperating SystemDomain Identity 2MameMyDevptDomain threading modeMyDevptHIMIO spaceEnabledLicensing numberXAN-S22-8888/15Substitute modeDisabledDomain Identity 2MarceNameMyDevptDomain Identity 1Domain Identity 2NameMyDevptNetDomain network nameMyDevptNetDomain IP address126.126.1.0Domain IP address126.126.1.0Domain IP addressDisabledIttp://www.MyPayrollWeb.comDomain IP addressDomain threading modeMultithreadingHIMIO spaceDisabledLicensing numberXAN-S22-8888/16Substitute modeEnabled	Fibre channel hosts *	Primary Link: Cell_1: Module_0/IOB_1/PCISLOT_1 MyDevpt: Primary Link: Cell_3: Module_1/IOB_1/PCISLOT_1				
Domain Identity 1NameMyTestDescriptionTime zone: ParisOperating SystemLinuxDomain network nameMyTestNetDomain IP address126.126.1.2Domain URLhttp://www.MyProductionWeb.comDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-8888/16Substitute modeEnabled	IO resource location					
NameMyTestDescriptionTime zone: ParisOperating SystemLinuxDomain network nameMyTestNetDomain IP address126.126.1.2Domain URLhttp://www.MyProductionWeb.comDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledDomain network nameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain IP address126.126.1.0Domain IP address126.126.1.0Domain IP address126.126.1.0Domain IP address126.126.1.0Domain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain URLKAN-S22-88888/16HMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Resource access	Cell1, Hublink 1 / Cell2, Cell3, Hublinks 2 & 3				
DescriptionTime zone: ParisOperating SystemLinuxDomain network nameMyTestNetDomain IP address126.126.1.2Domain URLhttp://www.MyProductionWeb.comDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain IP address126.126.1.0Domain IP address126.126.1.0Domain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain URLKattreadingHMMIO spaceDisabledLicensing numberXAN-S22-8888/16Substitute modeEnabled		Domain Identity 1				
Operating SystemLinuxDomain network nameMyTestNetDomain IP address126.126.1.2Domain URLhttp://www.MyProductionWeb.comDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemMyDevptNetDomain IP address126.126.1.0Domain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Name	MyTest				
Domain network nameMyTestNetDomain IP address126.126.1.2Domain URLhttp://www.MyProductionWeb.comDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-8888/16Substitute modeEnabled	Description	Time zone: Paris				
Domain IP address126.126.1.2Domain URLhttp://www.MyProductionWeb.comDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledMameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain IP address126.126.1.0Domain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-8888/16Substitute modeEnabled		Linux				
Domain URLhttp://www.MyProductionWeb.comDomain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledMameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledSubstitute modeEconomic PayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Domain network name	MyTestNet				
Domain threading modeMultithreadingHMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledMameMyDevptDescriptionTime zone: ParisOperating SystemMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledSubstitute modeEnabledSubstitute modeEnabled	Domain IP address	126.126.1.2				
HMMIO spaceEnabledLicensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledHalt on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Domain URL	http://www.MyProductionWeb.com				
Licensing numberXAN-S22-88888/15Substitute modeEnabledHalt on machine check resetDisabledHalt on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Domain threading mode	Multithreading				
Substitute modeEnabledHalt on machine check resetDisabledDomain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledSubstitute modeEnabled	HMMIO space	Enabled				
Halt on machine check resetDisabledHalt on machine check resetDomain Identity 2NameMyDevptNameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-8888/16Substitute modeEnabled	Licensing number	XAN-S22-88888/15				
Domain Identity 2NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Substitute mode	Enabled				
NameMyDevptDescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Halt on machine check reset	Disabled				
DescriptionTime zone: ParisOperating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled		Domain Identity 2				
Operating SystemWindowsDomain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Name	MyDevpt				
Domain network nameMyDevptNetDomain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Description	Time zone: Paris				
Domain IP address126.126.1.0Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Operating System	Windows				
Domain URLhttp://www.MyPayrollWeb.comDomain threading modeMultithreadingHMMIO spaceDisabledLicensing numberXAN-S22-88888/16Substitute modeEnabled	Domain network name	MyDevptNet				
Domain threading mode Multithreading HMMIO space Disabled Licensing number XAN-S22-88888/16 Substitute mode Enabled	Domain IP address	126.126.1.0				
HMMIO space Disabled Licensing number XAN-S22-88888/16 Substitute mode Enabled	Domain URL	http://www.MyPayrollWeb.com				
Licensing number XAN-S22-88888/16 Substitute mode Enabled	Domain threading mode	Multithreading				
Substitute mode Enabled	HMMIO space	Disabled				
	Licensing number	XAN-S22-88888/16				
Halt on machine check reset Disabled	Substitute mode	Enabled				
	Halt on machine check reset	Disabled				

* Reserved for systems connected to a Storage Area Network (SAN) Table 49. Scheme configuration criteria – example 4 – bi–module server To create a multi-domain scheme using a part of server resources:

- 1. Check that the required hardware resources are available (at least one IOB and one QBB are required for each server domain) and that the domain Operating System supports the required hardware resources (CPUs, DIMMs, ...).
- 2. From the Customer Administrator PAM tree, click Configuration Tasks \rightarrow Domains \rightarrow Schemes to open the Schemes Management pane.
- 3. Click **New** to open the **Scheme Creation** dialog.
- 4. Complete the Scheme and Description fields.

🗐 Scheme Mana	igement with SAN Dialogue de	page Web			
Scheme Name :	MyTest_DevptScheme	di	Central Subsystem		
Description:	Multi-domain, Cells 1, 2 & 3,	~	Add	Remove	Modify
	MyTest & MyDevpt	*	Domains		
			Bemove Identity	EFILUNS Data LUNS	Link Lock Hardware
Welcome to	the Domain Scheme wizard.				
	Central Subsystem is designed dependent domains.	around a fle	exible, cell-based architect	ure allowing dynamic partitio	oning into up to four
A domain is System insta	a set of hardware and software ince.	resources,	spanning one or more Cer	tral Subsystem cells, mana	ged by a single Operating
A Domain Sc	cheme is the template used to d	efine and m	anage a set of domains th	at can be active simultaneo	usly.
Complete the	e Scheme Name and optionaly (Description 1	ields and click Add to beg	in domain scheme creation.	
			-		
🤜 Indicates Rec	quired Field.				
	Save		Cancel		Help
[S]			AUC .		>

Figure 190. Scheme creation dialog - example 4

5. Click **Central Subsystem** → **Add** to select the Central Subsystem to be used by the domain configuration scheme. The **Central Subsystem Configuration** dialog opens.

🐔 Add and Co	nfigure (Central Sub	system	Dia	logue	de page	Web		×
Select the Ce			1						
Central S	-	n Name	Cells	CF		emory		itus	
MYSERVER 4 16 0 PRESENT Second and the secon									
 1- Use the dropdown list to select the required number of partitions. Number of Partitions: 3 									
2- Select a con	figuration	and click C)K to coi	ntinue					
MODULE_1	8	2 2	8						
MODULE_0		1 2							
	Partitio	n1 P	artition 2		P	artition 3			
	CELL_0	Total CEL	L_1 Tota	al (CELL_2	CELL_3	Total		
CPU	4	4	4	4	4	4	8		
Memory (MB)	0	0	0	0	0	0	0		
	K			ancel				<u>H</u> elp	

Figure 191. Central Subsystem configuration dialog - example 4

- 6. Check that the required Central Subsystem is highlighted and select **3** in the **Number of Parts** dropdown list.
- 7. Select the required partition configuration and click **OK** to return to the **Scheme Management** dialog.
- 8. As you want this scheme to only use Cells 1, 2 and 3, you must remove the domain using Cell 0. Hover the mouse over the cells represented in the **CellBlocks** diagram to identify the domain using Cell 0. **D1** is using Cell 0.

9. Click $D1 \rightarrow Domains \rightarrow Remove$ and click OK to remove the domain from the scheme.

heme Name :	MyTest_D	e∨ptScheme		Central Subsystem			
escription:	Multi-dom MyTest &	ain, Cells 1, 2 & 3, MyDevpt		<u>A</u> dd Domains	Remove	Mo	dify
				Remove Identity EFI	LUNs Data LUNs Lir	n <u>k</u> L <u>c</u>	ck Hardw
otionally, a Do hen a LUN is omain's PCI sl o select or cre o select a EFI o add data lur	omain may a connected t lots. ate a Doma boot lun, do	Iso include one or mo o the SAN (Storage A in Identity, double-clio uble-click the EFI LUI	ore Data L rea Netwo ck the Dom Ns field or	main must have an Identity and UNs. rrk), it must be linked to a Fibre (nain Identity field or select a dom select a domain and click the El t a domain and click the Data LU	Channel Host plugged into o nain and click the Identities b FI LUNs button.		
) define links l				ected through the SAN, select a		utton.	
	between fibe	r channel hosts and	luns conni		domain and click the Link bu		S
temporarily (CellBlocks	between fibe exclude som	er channel hosts and e hardware compone	luns conni	ected through the SAN, select a a domain, select the domain and	domain and click the Link bu click the Lock Hardware but		S
temporarily (CellBlocks	between fibe exclude som	er channel hosts and e hardware compone	luns conni ints from a	ected through the SAN, select a a domain, select the domain and	domain and click the Link bu click the Lock Hardware but Data LUNs		s C
temporarily (CellBlocks	between fibe exclude som	er channel hosts and e hardware compone	luns conni ints from a	ected through the SAN, select a a domain, select the domain and EFI LUNs	domain and click the Link bu click the Lock Hardware but Data LUNS << No Data LUNS >> Ata LUNS >> Ata LUNS >>		S O
o temporarily (between fibe exclude som	er channel hosts and e hardware compone	luns conne ints from a Mieros	ected through the SAN, select a domain, select the domain and EFILUNS off Internet Explorer Do you want to delete this domain ?	domain and click the Link bu click the Lock Hardware but Data LUNS << No Data LUNS >> Ata LUNS >> Ata LUNS >>		S O
CellBlocks	between fibe exclude som	er channel hosts and e hardware compone	luns conne ints from a Mieros	ected through the SAN, select a domain, select the domain and EFI LUNS off Internet Explorer Do you want to delete this domain ? Click OK to delete, or click Cancel to e	domain and click the Link bu click the Lock Hardware but Data LUNS << No Data LUNS >> Ata LUNS >> Ata LUNS >>		S • •
CellBlocks	between fibe exclude som	r channel hosts and e hardware compone Domain Identifies	luns conn ints from a Micros	ected through the SAN, select a domain, select the domain and EFI LUNS off Internet Explorer Do you want to delete this domain ? Click OK to delete, or click Cancel to e	domain and click the Link bu click the Lock Hardware but Data LUNS << No Data LUNS >> Ata LUNS >> Ata LUNS >>		S <

Figure 192. Remove domain confirmation dialog - example 4

10.Now, only two domains appear in the Scheme Management dialog.

The **Status** icons are red because **Domain Identities** and **EFI LUNs** are required to complete domain configuration.

🛃 Scheme Mana	gemen	i with SAN Dialogue de par	ge Web					×
Scheme Name : Description:	Multi	est_DevptScheme -domain, Cells 1, 2 & 3, est & MyDevpt		Central Subsystem Add Domains Remove Identity	Remove EFILUNs Data LUNs Link		idify ock Har	dware
Optionally, a Do	main r connec	on of fully configured Domain nay also include one or more tted to the SAN (Storage Are	e Data Ll	JNs.	and an EFI Boot LUN. ore Channel Host plugged into one	of the		
To select a EFI I To add data lun To define links b	ooot lu s, dou ietwee	in, double-click the EFI LUNs ble-click the Data LUNs field in fiber channel hosts and lu	s field or or select ns conne	select a domain and click th a domain and click the Dat cted through the SAN, sele		on.		
CellBlocks	D	Domain Identities		EFILUNS	Data LUNs	L	S	
MYSERVER	1				<< No Data LUNs >>		•	
	2				<< No Data LUNs >>			
🗬 Indicates Req	uired I	Field.					2	
	Sa	VB		Cancel	Help]		
<								۲.

Figure 193. Scheme Management dialog - example 4

11. Double-click the empty D1 Identities field. The Identities List dialog opens.

🕘 Identity Dialogue de page	Web	X		
Central Subsystem : MYSER	/ER	Current Identity : none		
Select an Identity from the list	and click OK to apply or click New to create a ne	w identity.		
Identities	Description			
Δ MYOffpeakProd	Time zone: Paris			
MyOperations-00	Default identity used in the single domain containg all h subsystem MYSERVER	ardware of the central		
∆ MyPayroll	Paris			
At MyProduction	Time zone: Vladivostock			
🛆 MyTest	Time zone: Paris			
<	III	>		
New	<u>O</u> K <u>Cancel</u>	Help		

Figure 194. Identities list dialog - example 4

12. If the required identity is in the list, go to Step 17.

If you want to create a new identity for this domain, click **New** to open the **Create New Identity** dialog. See *Creating a Domain Identity*, on page 5-47 for details.

13.Complete the Name, Description, Domain Settings, Management Parameters, Multithreading Mode, HMMIO Space, Licensing Number and Machine Check fields.

🕘 Idenitity Dialog	jue de page Web	×
	Create a New Identity	
Domain identity na	me is used to uniquely identify a domain.	
Identity Name : 🛛	/yTest	
Description :	ime zone: Paris	
	ting System and Version to be used by the domain to run your activities.	
Operating System	n : Linux 💟 Version :	
	r <mark>ameters</mark> ≺Name and IP address to be used by System Management software to access the domain. be used by a Web browser to access the domain Web site.	
Network Name :	MyTestNet	
IP Address :	126.126.1.2	
URL:	http://www.MyTestWeb.com	
CPU Parameters This option is onl Monothreadin	y applicable to multithreading capable CPUs.	
High Memory IO Only use this mer Enable PCI ga	nory addressing extension if supported by your hardware and Operating System.	
Licensing Number Serial Number :	XAN-YYY-12345 Zextension: 15 Licensing Number: XAN-YYY-12345/15	
Machine Check	Machine Check Reset (Option reserved for use by Support personnel) ired Field.	
<u></u>	K <u>C</u> ancel <u>H</u> elp	

Figure 195. Create new identity dialog - example4

- 14. Click OK. The new identity appears in the Identities List dialog.
- 15. Select the required identity from the list of available identities and click **OK** to return to the **Scheme Management** dialog. The selected identity is now displayed in the **Domain Identities** field.
- 16. Repeat Steps 11 to 15 for Domain Identity D2.

17.Double–click the **D1 EFI LUNs** field. The **Select EFI LUN** dialog opens, allowing you to choose the required EFI Boot LUN from the list of available LUNs.

Central Subsystem : MYSER	/ER					Current EFI LUN :N
Each Domain must have an E Boot LUN from the list and cli			an Operat	ing Syste	m has bee	n installed. Select the required E
	ik on to apply.					
Available EFI LUNs :						
Name	LUN Number	Туре	Capacity	Loaded	Allocated	Description
SAN: FDA1300						
R LUN1	0000	RAID1	15.0GB	No	No	
🚾 LUN2	0000	RAID1	15.0GB	No	No	
Local: MYSERVER						42. AV
WYSERVER_0LU0		Local CELL_0		Yes	Yes	Default LUN attached to CELL_0 in the central subsystem MYSERVER
WYSERVER_0LU1		Local CELL_1		No	No	Default LUN attached to CELL_1 in the central subsystem MYSERVER
		1 1	3			Default I LIN attached to CELL 2 in

Figure 196. Select EFI LUN dialog - example 4

18.Select the required EFI Boot LUN from the list of available LUNs and click OK to return to the Scheme Management dialog. The selected LUN is now displayed in the EFI LUNs field.

As the selected EFI LUN is a SAN LUN, the **Status** icon remains red and the **No Link** icon appears.

19. Double–click the **D2 EFI LUNs** field. The **Select EFI LUN** dialog opens, allowing you to choose the required EFI Boot LUN from the list of available LUNs.

As the selected EFI LUN is a Local LUN, the Status icon turns green.

20.Double–click the **D1 Data LUNs** field. The **Select Data LUN** dialog opens, allowing you to choose the required Data LUNs from the list of available LUNs.

21.Select the required Data LUNs from the list of available LUNs and click **Add** to move the selected Data LUNs to the **Data LUNs selected** list.

Central Subsystem : MYSEF							Identity
ach Domain must have an B optionally, each Domain may o view Data LUN details, se o allocate a Data LUN to a I o link a Data LUN on the SA o remove a Data LUN from	/ have one or m lect the Data LU Domain, select t N to a Domain,	ore Dat JN and he Data select t	a LUNs foi click the D LUN and he Data L	data sto etails bu click the UN and c	rage. tton. Add button. lick the Link bu	tton.	
Data luns available:	LUN	Time	Caugaitu	Londod	Blicosted	Description	Details
Name	Number	Туре	Capacity	Loaded	Allocated	Description	
AN: FDA1300	0000	DND1	46.000	bla	Ne		
	0000	RAID1	15.0GB	No	No		
LUN5 LUN7	0002	RAID5 RAID5	10.0GB 10.0GB	No No	No No		
	0002	RAID5	1.0GB	No	No		
	0003	RAID5	33.2GB	No	No		
ocal: MYSERVER	0004	TADS	33.200	ING	140		
MyDataLun3		Local		No	No		1
		Add		🔶 Rei	nove	Link	Details
Data luns selected:			Capacity	Loaded	Allocated	Description	
)ata luns selected: Name	LUN Number	Туре	capacity	Loudou		Description	
Name	LUN Number	Туре	copacity	Loudou	10	Description	-
Name SAN: FDA1300		Type RAID5	33.2GB	No	Yes	Description	
	Number				Yes Yes	Description	

Figure 197. Select Data LUN dialog - example 4

22.Click **OK** to return to the **Scheme Management** dialog. **Data LUN set** is now displayed in the **Data LUNs** field.

The **Status** icon remains red and the **No Link** icon \mathbb{E} is displayed. You must now link the selected EFI and Data LUNs to the Fibre Channel Host you want to use to access these LUNs.

23. Repeat Steps 20 to 22 for D2 Data LUNs.

As the selected Data LUN is a SAN LUN, the Status icon turns red and the No Link icon

is displayed. You must now link the selected Data LUN to the Fibre Channel Host you want to use to access these LUN.

24. Double–click the **D1 No Link** icon **b** to open the **Link LUNs to HBA** dialog.

Central Subsystem : MYSERVER			Identity :
Central Subsystem . MITSERVER			identity.
When a LUN is connected to the SAN omain's PCI slots.	(Storage Area Network), it m	nust be linked to at least one Fibre Ch	annel Host plugged into one of the
o establish the Primary Link between	a LUN and a Fibre Channe	I host, select the LUN from the list and	I click the Set Primary Link button.
		Tibre Channel Host. To establish the S ndant check box and click the Set Sec	condary Link button.
LUN Name	Redundant	Set Primary Link Primary Link	Set Secondary Link Secondary Link
LUN1		Phillidry Llink	Secondary Link
LUN10			
-UN10 -UN4			
-UN10 -UN4			
LUN10 LUN4			~

Figure 198. Link LUN to HBA dialog – example 2

25. Select the first LUN in the list and click **Set Primary Link** to define the main access path to the SAN. The **Select HBA** dialog opens, allowing you to select the domain PCI slot you want to use to access the LUN.

🐔 Select an HBA D	ialogue de pa	age Web		[
Central Subsystem Identity : LUN :	MYSERVER	2		
	PCI Slot to e	stablish the primary link betwee	n LUN LU	N1 and
PCI Slots	;	WWN	Linked	
FE CELL_0: MODULE	_0/IOC_0			<u> </u>
PCI	SLOT_1		No	
PCI	SLOT_2		No	
PCI	SLOT_3		No	
PCI	SLOT_4		No	
PCI	SLOT_5		No	
PCI	SLOT_6		No	
E CELL_1: MODULE	_0/IOC_1			
PCI	SLOT_1		No	
PCI	SLOT_2		No	
PCI	SLOT_3		No	
<				
	ОК	Cancel		

Figure 199. Select HBA dialog - example 4

- 26.Select the required PCI slot and click OK. The primary link is now set.
- 27. Repeat Steps 25 to 26 for each LUN in the list and click $OK \rightarrow Apply$ to return to the

Scheme Management dialog. The D1 Status icon turns green and the Linked icon appears.

28. Repeat Steps 24 to 27 for D2. All Status icons are green.

29. Select **D2** and click **Lock Hardware** to open the **Lock Domain Hardware Resources** dialog.

Lock Domain Hardware Resources -	- Dialogue de page Web	X
Domain : MyDevpt EFI LUN : MYSERVER_0LU3		Central Subsystem : MYSERVER
This Domain comprises: CELL_2,CEL	.L_3	
To temporarily exclude a hardware of All non-excluded components can be		nain, it must first be locked .
		ent Checkbox and click OK onent Checkbox and click OK
Image: Constraint of the state of the s		
<u>K</u>	Cancel	Help

Figure 200. Lock domain hardware resources - example 4

- 30. Select the resources you want to lock and click **OK** to return to the **Scheme Management** dialog. See *Limiting Access to Hardware Resources*, on page 5-62 for details.
- 31. Click Save. The domain configuration scheme is now available for domain management.

I Note:

Cell 0 is free and available for use by another scheme, if required.

Configuring and Managing Extended Systems

A single PAP unit can administer, monitor, and manage several Central Subsystems.

The PAM **Domain Configuration Scheme Wizard** allows easy configuration of extended systems.

Please contact your BULL Customer Sales Representative for details.

Scheme, Domain Identity, and Resources Checklists

	Scheme Checklist
Name	What name do I want to use for my Scheme?
Description	How can I describe my Scheme to reflect its scope?
Central Subsystem(s)	Which Central Subsystem(s) do I want to use?
Number of Domains	How many domains do I need?
Domain Size	How many cells do I want to assign to each domain?
EFI Boot LUNs	Which EFI boot LUN do I want to use for each domain?
Data LUNs *	Which data LUNs do I want to assign to each domain?
Fibre Channel Hosts *	Which fibre channel host(s) do I want to use to access LUNs?
I/O Resource Location	Which cells host the I/O resources I want to use?
Resource Access	Do I want to limit access to certain hardware resources?

* Reserved for systems connected to a Storage Area Network (SAN).

Table 50. Scheme configuration checklist

	Domain Identity Checklist
Name	What name do I want to use for my Domain Identity to reflect the tasks/jobs it will run?
Description	How can I describe my Domain Identity to reflect its use?
Operating System	Which OS do I want to run on this domain? Will this OS support assigned hardware (CPUs, DIMMs)?
	Which network name will be used to identify this domain?
Domain IP Address	Which IP address will be used to reach this domain?
Domain URL	Which URL can be used to reach my domain Web site (if any)?
Multithreading Mode	Do the CPUs used by this domain support the multithreading mode? Do I want to enable the multithreading mode for this domain?
High Memory IO Space	Do I need more than 4GB PCI gap space for the PCI boards used by this domain?
Licensing Number	Do I intend to install an application protected by a system serial number on this domain? Do I want to substitute the physical system serial number with the logical licensing number for optimum flexibility?
Force Halt on Machine Check Reset	Has my Customer Service Engineer requested me to check this box to troubleshoot my server?

Table 51.	Domain	Identity	configuration	checklist
-----------	--------	----------	---------------	-----------

0		sources Checklist		
Central Subsy	ystem: Cell 0		Cell 1	
		000		
QBBs	QBB0	QBBs	QBB2	
	QBB1		QBB3	
IO Box	IOB0	IO Box	IOB1	
EFI Boot Lun	0Lu0	EFI Boot Lun	0Lu1	
OS instance		OS instance		
I/O Resources		I/O Resources		
IOB0_Slot 1		IOB1_Slot 1		
IOB0_Slot 2		IOB1_Slot 2		
IOB0_Slot 3		IOB1_Slot 3		
IOB0_Slot 4		IOB1_Slot 4		
IOB0_Slot 5		IOB1_Slot 5		
IOB0_Slot 6		IOB1_Slot 6		
IOB0_Slot 7		IOB1_Slot 7		
IOB0_Slot 8		IOB1_Slot 8		
IOB0_Slot 9		IOB1_Slot 9		
IOB0_Slot 10		IOB1_Slot 10		
IOB0_Slot 11		IOB1_Slot 11		

Table 52. Resources checklist - part 1

	Re	sources Checklist		
Central Subs	ystem:			
	Cell 2		Cell 3	
QBBs	QBB0	QBBs	QBB2	
	QBB1		QBB3	
IO Box	IOB0	IO Box	IOB1	
EFI Boot Lun	1Lu0	EFI Boot Lun	1Lu1	
OS instance		OS instance		
I/O Resources		I/O Resources		
IOB0_Slot 1		IOB1_Slot 1		
IOB0_Slot 2		IOB1_Slot 2		
IOB0_Slot 3		IOB1_Slot 3		
IOB0_Slot 4		IOB1_Slot 4		
IOB0_Slot 5		IOB1_Slot 5		
IOB0_Slot 6		IOB1_Slot 6		
IOB0_Slot 7		IOB1_Slot 7		
IOB0_Slot 8		IOB1_Slot 8		
IOB0_Slot 9		IOB1_Slot 9		
IOB0_Slot 10		IOB1_Slot 10		
IOB0_Slot 11		IOB1_Slot 11		

Table 53. Resources checklist - part 1

Table 54. Resources checklist – part 2

Section V – Creating Event Subscriptions and User Histories

This section explains how to:

- Customize the PAM Event Messaging System, on page 5-114
- Set up Event Subscriptions, on page 5-115
- Create, Edit, Delete an E-mail Server, on page 5-117
- Create, Edit, Delete an E-mail Account, on page 5-119
- Create, Edit, Delete a User History, on page 5-124
- Enable / Disable Event Channels, on page 5-128
- Create, Edit, Delete an Event Subscription, on page 5-130
- Understand Event Message Filtering Criteria, on page 5-132
- Preselect, Create, Edit, Delete an Event Filter, on page 5-121

Customizing the PAM Event Messaging System

During operation, all Central Subsystem activity messages are automatically logged in predefined System Histories that can be viewed and archived by members of the Customer Administrator group. In addition, PAM software reports and logs environmental, command, and hardware errors.

A comprehensive set of Event Message subscriptions allows connected and non-connected users to be notified of system status and activity.

The PAM event messaging system is based on a subscription mechanism allowing the Customer Administrator to send precisely filtered event messages to targeted individuals and/or groups via four channels (WEB Interface, E–mail, User History, SNMP) as shown in Figure 201.

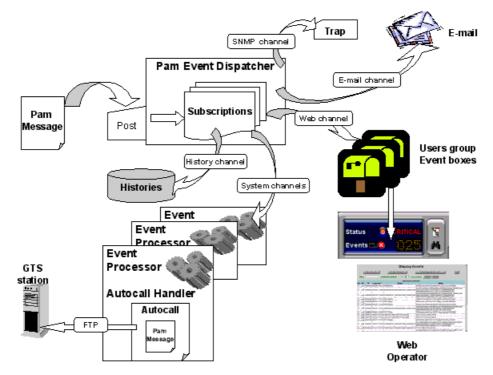


Figure 201. PAM event messaging system features

INote:

PAM software is delivered with a set of predefined subscriptions that have been designed to suit the needs of most Administrators and Operators. If required, you can use PAM **Configuration** tools to set up customized subscriptions.

From the PAM tree, expand the **Configuration Tasks** and **Events** nodes to display event configuration options.

Setting up Event Subscriptions

Before creating an event subscription, you should establish:

- the set of messages you want a user or a group of users to receive (Filter),
- how you want the user or group of users to receive messages (Channel).

Selecting a Filter

The comprehensive event message filtering system allows you to use a predefined filter or to create a specific filter, according to your needs.

See *Preselecting an Event Filter*, on page 5-121 and *Creating an Event Filter*, on page 5-122.

Selecting a Channel

Four channels can be used to forward event messages, according to targeted recipients:

Channel	Advantage
E-mail	Allows a specific user to receive system notifications/ alerts.
User history	Records specific system operations/alerts into a dedicated log file.
Web	Allows a specific group of users to be warned of system operations/alerts when connected to the PAM Web interface.
SNMP	Forwards specific messages as SNMP traps to the selected SNMP applica- tion.

Table 55. Event channels

Event Subscription Flowcharts

Once you have established who the targeted recipients are and which channel you want to use, you can use the following flowcharts as a quick guide to event subscription procedures.

E-mail Event Subscription
Allows a specific user to receive system notifications/alerts via e-mail.
Preselect an Event filter, on page 5-121, or Create an Event Filter, on page 5-122.
Select or Create an E-mail Server, on page 5-117.
Select or Create an E-mail Account, on page 5-119.
Create the Event Subscription, on page 5-130.
User History Event Subscription
Records specific system operations/alerts into a dedicated log file.
Preselect an Event filter, on page 5-121, or Create an Event Filter, on page 5-122.
Select or Create a User History, on page 5-125.
Create the Event Subscription, on page 5-130.
Web Event Subscription
Allows a specific group of users to be warned of system operations/alerts when connected to the PAM Web interface.
Preselect an Event filter, on page 5-121, or Create an Event Filter, on page 5-122.
Create the Event Subscription, on page 5-130.
SNMP Event Subscription
Forwards system operations/alerts as SNMP traps to the selected SNMP Manager.
Preselect an Event filter, on page 5-121, or Create an Event Filter, on page 5-122.
Create the Event Subscription, on page 5-130.

Creating, Editing, Deleting an E-mail Server

To send messages via the e-mail channel, you must first create an e-mail server. Several e-mail accounts can then be attached to the same e-mail server, see *Creating an E-mail Account*, on page 5-119.

Creating an E-mail Server

To create an e-mail server:

 Click Configuration Tasks → Events → E-mail servers in the PAM tree. The e-mail servers configuration page opens.

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Optionally, a de	r is defined by its logical name and URL address scription, a UserName and Password may be add r is used in association with an e-mail account to	ded.	
🖷 Indicates Re	quired Field.		1000
	<u></u>	Cancel	

Figure 202. E-mail servers configuration page

- 2. Click New in the toolbar.
- Enter the server name in the Name field, the address of the existing e-mail server you intend to use in the URL field, and a brief description, if required, in the Description field.
- 4. Enter a user name and password, if required and click **OK** to confirm the creation of the new e-mail server.

I Note:

The **OK** button is accessible once all mandatory fields have been completed.

Editing E-mail Server Attributes

To modify an e-mail server URL / description:

- Click Configuration Tasks → Events → E-mail servers in the PAM tree. The e-mail server configuration page opens. See Figure 202 above.
- 2. Select the required server from the e-mail servers list.
- 3. Click Edit in the toolbar to modify the server URL / description.
- 4. Enter a new address in the **URL** field and/or a new description in the **Description** field, as applicable.
- 5. Click **OK** to confirm the modification.

Deleting an E-mail Server



Important:

Before deleting an e-mail server, all the accounts attached to that server must be attached to another server, or deleted. At least one e-mail server must be defined to send messages via the e-mail channel.

If e-mail accounts are attached to this e-mail server:

- see *Editing E-mail Account Attributes*, on page 5-118 to attach these accounts to another server, or
- see *Deleting an E-mail Account*, on page 5-120 to delete these accounts.

To delete an e-mail server:

- 1. Click **Configuration Tasks** → **Events** → **E-mail Servers** in the PAM tree. The e-mail server configuration page opens. See Figure 202, on page 5-117.
- 2. Select the required server from the e-mail servers list.
- 3. Click Delete in the toolbar.
- 4. Click OK to confirm the deletion of the selected e-mail server.

Creating, Editing, Deleting an E-mail Account

To send messages via the e-mail channel, you must first create an e-mail server and then attach an e-mail address to this e-mail server. Several e-mail accounts can be attached to the same e-mail server.

Creating an E-mail Account

To create an e-mail account:

Click Configuration Tasks → Events → E-mail accounts in the PAM tree. The e-mail accounts configuration page opens.

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Figure 203. E-mail accounts configuration page

- 2. Click New in the toolbar.
- 3. Enter the new account name in the **Account** field and corresponding e-mail address in the **URL Address** field.
- Select the server to be used to deliver messages to this address from the E-mail Server list. If the required e-mail server is not in the list, see *Creating an E-mail Server*, on page 5-117.
- 5. Enter a brief description, if required, in the **Description** field.
- 6. Click OK to confirm the creation of the new e-mail account.

The new e-mail account can now be selected when you set up an event subscription to be sent via the e-mail channel.

Note:

The **OK** button is accessible once all mandatory fields have been completed.

Editing E-mail Account Attributes

To modify an e-mail account name, address, server and/or description:

- Click Configuration Tasks → Events → E-mail accounts in the PAM tree. The e-mail accounts configuration page opens. See Figure 203 above.
- 2. Select the required account from the e-mail accounts list.
- 3. Click Edit in the toolbar to modify the account name, address, server and/or description.
- 4. Enter the new attributes in the corresponding fields, as applicable. If the required e-mail server is not in the list, see *Creating an E-mail Server*, on page 5-117.
- 5. Click **OK** to confirm the modification.

Deleting an E-mail Account



Important:

Before deleting an e-mail account, all the event subscriptions attached to that account must be attached to another account, or deleted.

If event subscriptions are attached to this e-mail account, see:

- Editing Event Subscription Attributes, on page 5-131 to attach these event subscriptions to another account,
- or *Deleting an Event Subscription*, on page 5-131 to delete these event subscriptions.

To delete an e-mail account:

- Click Configuration Tasks → Events → E-mail accounts in the PAM tree. The e-mail accounts configuration page opens. See Figure 203 above.
- 2. Select the required account from the e-mail accounts list.
- 3. Click Delete in the toolbar.
- 4. Click OK to confirm the deletion of the selected e-mail account.

Preselecting, Creating, Editing, Deleting an Event Filter

An event filter must be selected for all event subscriptions. The event messaging system is delivered with a set of predefined filters.

Preselecting an Event Filter

Before proceeding to set up an event subscription, you are advised to check which predefined filter is adapted to your needs:

 Click Configuration Tasks → Events → Filters in the PAM tree. The filter configuration page opens.

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Name	Description	
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Figure 204. Filters configuration page

2. Check that the required filter is present.

You may also define a specific filter by using the comprehensive event message filtering utility. See *Creating an Event Filter*, on page 5-122.

Creating an Event Filter

Once you have established which filtering criteria you want to apply to your new filter, you can proceed to create a new event filter:

- 1. Click **Configuration Tasks** → **Events**→ **Filters** in the PAM tree. The filter configuration page opens with the list of existing event message filters.
- 2. Click **New** to display the **Create a New Event Filter** page. The standard event message filtering criteria table is displayed.

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		1						

Figure 205. New Filter configuration page - standard event message filtering criteria table

3. Enter a relevant name in the **Filter Name** field and a brief description, if required, in the **Description** field.

I Note:

For further details about event filtering criteria and options, see *Standard Event MessageFiltering Criteria*, on page 5-134 and *Advanced Event Message Filtering Criteria*, on page 5-137.

- 4. Deselect the S checkbox for the event messages not to be included in the filter.
- 5. If the filter is to be used to send messages to the PAM Web interface, select the **Ack** checkbox if you want the event message to be manually acknowledged by a user; or deselect the **Ack** checkbox to enter a display value in the **Duration** cell.
- 6. Double click the **Severity** cell to select the message severity level.

7. If required, click **Advanced** to access advanced filtering criteria. The advanced event message filtering criteria chart is displayed.

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Figure 206. New Filter configuration page – advanced event message filtering criteria table

- 8. When you have finished configuring your event filter, click Create.
- 9. Repeat steps 3 to 8 for each new event filter you want to create.

10.Click Close to save changes. The new filter appears in the Filters list.

Editing Event Filter Attributes

- 1. Click **Configuration Tasks** → **Events**→ **Filters** in the PAM tree. The filter configuration page opens with the list of existing event message filters. See Figure 205 above.
- 2. Select the required filter from the event message filter list.
- 3. Click Edit in the toolbar to modify filter attributes.
- 4. Click **OK** to save changes.

Deleting an Event Filter



Important:

Before deleting an event filter, all the event subscriptions using that filter must either be modified to use another filter, or deleted.

- Click Configuration Tasks → Events→ Filters in the PAM tree. The filter configuration
 page opens with the list of existing event message filters. See Figure 204 above.
- 2. Select the required filter from the event message filter list.
- 3. Click **Delete** in the toolbar.
- 4. Click **OK** to confirm the deletion of the selected event filter.

Creating, Editing, Deleting a User History

There are two types of histories: System histories and User histories.

System histories cannot be modified and are are only accessible to members of the Customer Administrator group.

User histories can be created, edited and deleted and are accessible to members of both the Customer Administrator and Customer Operator groups.

For guidance, System history contents are explained in the following table:

System History Contents

History Name	Contents
HistoryTrace	History Manager trace file. Logs archiving actions and history/archive processing errors.
InterventionReportHistory	Reserved for Support personnel.
IPMITrace	Reserved.
MaestroHistory	Reserved.
MaestroTrace	Reserved for Support personnel.
PAMHistory	Central PAM software history file. Logs all error or infor- mation messages concerning PAM software and all oper- ator visible events.
PAMTrace	Logs domain power sequence trace data.
RPCTrace	Reserved for Support personnel.
SANTrace	Logs SAN-IT trace data.

Table 56. System history contents

Creating a User History

Dote:

The Site Data Directory will be used, by default, if you do not specify a different directory when you create a user history. See *Viewing PAM Version Information*, on page 4-12

To create a user history:

- 1. Click **Configuration Tasks** → **Histories** in the PAM tree. The **Histories** control pane opens.
- 2. Click New in the toolbar. The Create a New User History dialog opens.

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selected eve An automatic Note: If you o be saved to t	ent subscription is configured to use the LOG channe of filter are saved to the specified user history. archiving policy must be defined for each user history to not specify a user history when you configure the e he PAM data directory.	ry.
Name :		
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Directory :		
	Type : USER File Size : KB	Record Count :
- Automatic A Type : Directory :	rchiving Properties Size in KBytes ▼ Value : 1000	
	<u>OK</u>	Help

Figure 207. Create a New User History dialog

- 3. Enter a name in the **Name** field (mandatory) and a brief description, if required, in the **Description** field.
- 4. Enter a directory pathname in the **Directory** field. If this field is left blank, the default **Histories** directory will be used.

5. Use the drop–down menu to select an automatic archiving policy **Type**:

Туре	Automatic Archiving Policy
Number of Days	The system will automatically create an archive for this history after the number of days specified in the Value field.
Size in KBytes	The system will automatically create an archive when this history reaches the size in KBytes specified in the Value field. Note: Size in KBytes must be greater than 10.
Number of Records	The system will automatically create an archive when this history reaches the number of records specified in the Value field. Note: Number of Records must be greater than 10.

Table 57. History automatic achiving policies

- 6. Enter the required number of days / KBytes / records in the Value field, as applicable.
- 7. Enter a directory pathname in the **Directory** field. If this field is left blank, the default **Archives** directory will be used.
- 8. If you want the archive to be automatically deleted at regular intervals, select the **Delete archive files** checkbox and enter the number of days you want to maintain the archive in the **days** field.
- 9. Click **OK** to confirm the creation of the new history. The new history appears in the list of available histories.

Note:

The **OK** button is accessible once all mandatory fields have been completed.

Editing History Parameters

To modify the archiving parameters of system / user histories:

- Click Configuration Tasks → Histories in the PAM tree. The Histories control pane opens.
- 2. Select the required History from the Histories list.
- 3. Click **Edit** in the toolbar to modify the archiving parameters for this History. The **Edit History Parameters** page opens.
- 4. Enter the new parameters in the corresponding fields.
- 5. Click **OK** to confirm the modification.

Deleting a User History



Important:

Before deleting a user history, all the event subscriptions attached to that history must be attached to another history, or deleted. System histories cannot be deleted.

If event subscriptions are attached to this history:

- see *Editing Event Subscription Attributes*, on page 5-131 to attach these event subscriptions to another history, or
- see *Deleting an Event Subscription*, on page 5-131 to delete these event subscriptions.

To delete a user history:

- 1. Check that no event subscriptions are attached to this history.
- Click Configuration Tasks → Histories in the PAM tree. The Histories control pane opens.
- 3. Select the required History from the Histories list.
- 4. Click Delete in the toolbar.
- 5. Click **OK** to confirm the deletion of the selected user history.

Enabling / Disabling Event Channels

An event channel must be selected and enabled for all event subscriptions. The following table provides the Customer Administrator with guidelines for selecting an event channel.

Channel	Target	Enabled	Disabled
EMAIL	Specific recipient.	Allows a specific re- cipient to directly re- ceive specific mes- sages.	
LOG (User History)	All user groups.	Allows all users to ac- cess specific mes- sages.	Advanced feature: Only to be used if the system gener- ates too many mes-
SNMP	SNMP application.	Forwards specific messages as SNMP traps to the selected SNMP application for processing.	sages and mainte- nance actions are to be carried out.
WEB (PAM Interface)	Selected users.	Allows a specific group of users to view specific mes- sages.	

Table 58. Event channel selection guidelines

I Note:

When an event channel is disabled, all messages sent via that channel are lost. All event channels are enabled by default.

To enable / disable an event channel:

1. Click **Configuration Tasks** \rightarrow **Events** \rightarrow **Channels** in the PAM tree. The channels configuration page opens.

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an) Save			🤁 Hel
Channel Name	Enable	Description	1
EMAIL	€ Yes € No	Email Channel	
LOG	€ Yes € No	History Channel	
SNMP	€ Yes € No	SNMP Channel	
WEB	€ Yes € No	Web Channel	

Figure 208. Event Channels configuration page

- 2. Select the **Yes** or **No** radio button in the **Enable** column to enable or disable the required channel.
- 3. Click the **Save** icon to confirm the new configuration.

Creating, Editing, Deleting an Event Subscription

Once event subscription prerequisites have been set up, you can create the event subscriptions required to send messages to their destinations. See *Event Subscription Flowcharts*, on page 5-116.

Creating an Event Subscription

To create an event subscription:

- 1. Click **Configuration Tasks** → **Events** → **Subscriptions** in the PAM tree. The event subscription configuration page opens.
- 2. Click **New** in the toolbar.

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Selected sul	Channel Type : E-mail Account : Description : E-mail URL :	E-MAIL CLOG (History) CSNMP CWEB When you select the E-mail channel, all event messages matching the criteria defined in the selected Filter will be sent to the selected E-mail Account. Select an E-mail account		×
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Figure 209. New Event Subscription dialog box

- 3. Select the Active and Enable checkboxes to activate and enable the new subscription.
- 4. Enter a short, readily identifiable name in the **Name** field and a brief description, if required, in the **Description** field.
- 5. Select the required channel radio button:
 - E-MAIL: to send event messages to an e-mail address.
 - LOG: to send event messages to a user history.
 - SNMP: to send event messages to the SNMP Manager.
 - WEB: to send event messages to the status pane in the PAM web interface.
- 6. Select a pre–configured E–mail Account, User History, or User Group from the drop–down menu or enter an SNMP Manager IP address or server name.
- 7. Select a pre-configured filter from the Filter drop-down menu.

- 8. Click **OK** to confirm the creation of the new event subscription.
- 9. The event subscription configuration page is automatically updated with the new subscription.
- 10. Click **Test Subscription** to check that the event subscription has been configured correctly. Subscription parameters will be used to send a test message.

I Note:

The **OK** button is accessible once all mandatory fields have been completed.

Editing Event Subscription Attributes

To modify an event subscription description, channel, address and/or filter, or to activate / deactivate and/or enable / disable an event subscription:

- 1. Click **Configuration Tasks**→ **Events** → **Subscriptions** in the PAM tree. The event subscription configuration page opens.
- 2. Select the required event subscription in the event subscription table.
- 3. Click **Edit** to modify the attributes of this event subscription. The **Edit Event Subscription** dialog box opens.
- 4. Select the new channel, E-mail Account, User History, or User Group from the drop-down menu or enter a new SNMP Manager IP address or server name.
- 5. Modify the description.
- 6. If required, activate / deactivate and/or enable / disable the event subscription by selecting / deselecting the **Active** and **Enable** checkboxes.



Warning:

If you deactivate / disable an event subscription, no events will be sent to the recipient(s) until the event subscription is reactivated / re-enabled.

- 7. Click OK to confirm the modification.
- 8. Click **Test Subscription** to check that the event subscription has been re-configured correctly.

Note:

The **OK** button is accessible once all mandatory fields have been completed.

Deleting an Event Subscription

To delete an event subscription:

- Click Configuration Tasks → Events → Subscriptions in the PAM tree. The event subscription configuration page opens.
- 2. Select the required event subscription in the event subscription table.
- 3. Click **Delete** in the toolbar. The **Delete Subscription** dialog box opens.
- 4. Click OK to confirm the deletion of the selected event subscription.

Understanding Event Message Filtering Criteria

The set of predefined filters supplied with PAM software covers everyday event messaging requirements. However, a comprehensive filtering system allows you to finely tune event messaging criteria, if required.

Before creating a new event filter, you should get to know filtering criteria options.

- 1. Click **Configuration Tasks** → **Events**→ **Filters** in the PAM tree. The filter configuration page opens with the list of existing event message filters.
- 2. Click New to display the Standard Filter page.

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र द द द द द द द	Cannot power on domain Cannot save fault file CellBlock added CellBlock removed Check internal SAN Component inaccessible Config information applied	य य य य य य	Until Ack Until Ack Until Ack Until Ack Until Ack Until Ack			
<u>त त त त त त </u>	Cannot power on domain Cannot save fault file CellBlock added CellBlock removed Check internal SAN Component inaccessible Config information applied CPU KO (function restricted)	য য য <u>ব</u> ব	Until Ack Until Ack Until Ack Until Ack Until Ack Until Ack Until Ack			

Figure 210. Event message standard filtering criteria chart

3. Click Advanced to display the Advanced Filter page.

	Creat	e a New Eve	ent Filter					
	it subscriptio	on. You can finel	y tune event	messaging	criteria by	creating	a new ev	ent
			_					
				1]			
Cancel Select All	Ack	All Ca	ncel Ack All	Mess	aqe	<< Sta	ndard	
required cell to change	e event mes	sage filtering crit	eria					
ria are only applicable to eve	nt messages ser	it to the PAM Web int	erface.		Less:	1	1	- 1
					1		1	
		Constant and the Plants		Inactive		All	All	_
	10	the state of the second second second	Inactive	Inactive	All	All	All	
1.12	·	The second second second second	Inactive	Inactive	All	All	All	_
10 A			Inactive	Inactive	All	All	All	
F	Until Ac	1/	Inactive	Inactive	All	All	All	
٦	Until Ac		Inactive	Inactive	All	All	All	
7	7 Until Ac	k 🔍 🙂 🛆 🥸	Inactive	Inactive	All	All	All	
F	Until Ac		Inactive	Inactive	All	All	All	
	-	k 🔍 🙂 🛆 🔕	Inactive	Inactive	All	All	All	
٦	 Until Ac 							- 88
지 지			Inactive	Inactive	All	All	All	
	an existing filter.	an existing filter. Cancel Select All Ack required cell to change event messages ser ina are only applicable to event messages ser lentifier Ack* Duration IF Until Ac IF Until Ac	an existing filter. Cancel Select All Ack All Ca required cell to change event message filtering crit ria are only applicable to event messages sent to the PAM Web into tentifier Ack* Duration* Severity F Until Ack © A C F Until Ack © A C	an existing filter. Cancel Select All <u>Ack All</u> Cancel Ack All required cell to change event message filtering criteria. ria are only applicable to event messages sent to the PAM Web interface. Lentifier <u>Ack* Duration* Severity Threshold</u>	an existing filter.	an existing filter.	an existing filter.	Cancel Select All Ack All Cancel Ack All Message << Standard required cell to change event message filtering criteria. rata are only applicable to event messages sent to the PAM Web interface. Exercity Threshold Clipping Source Target Keyword Image: The service of the pame with the pame with the sent to the pame with the

Figure 211. Event message advanced filtering criteria chart

4. Carefully analyze Tables 59 and 60 to understand the various options.

Standard Event Message Filtering Criteria

Criteria	Description	
S (Select)	All the checkboxes in this column are selected by default. When an event message S checkbox is deselected, the event message is removed from the filter.	
	Actions	
	 Select the S checkbox if you want to include the event message in the new filter. 	
	 Deselect the S checkbox if you do not want to include the event message in the new filter. 	
Message/Identifier	Gives a message description and provides a clickable link to the as- sociated help messages.	
	Actions	
	 Toggle the Message/Identifier column by clicking Message or Identifier in the toolbar. 	
	 Double click the required message. The corresponding help message opens. 	
Ack (Acknowledge)	This column is only applicable to messages sent to the PAM Web interface and is interactive with the Duration column (see below). All the checkboxes in this column are selected by default. When the message Ack checkbox is selected, the event message will be displayed in the event list until it is manually acknowledged by a user.	
	Note: The PAM Web interface stores up to 150 event messages maximum per user group (100 messages by default). Once this limit has been reached, messages may be deleted in order of arrival, even if they have not been acknowledged.	
	Actions	
	 Select the Ack checkbox if you want the event message to be displayed until it is manually acknowledged by a user. 	
	 Deselect the Ack checkbox if you want the event message to be deleted automatically after a specified period of time. The Duration dialog box opens (see below). 	

Criteria	Description
Duration	This column is only applicable to messages sent to the PAM Web interface and is interactive with the Ack column (see above). When the specified duration expires, the event message is deleted auto- matically. Note: The PAM Web interface stores up to 150 event messages maximum per user group (100 by default). Once this limit has been reached, messages may be deleted in order of arrival, even if the set duration has not expired.
	Event Duration Web Page Dialog
	Message Display Duration
	Event Message : Burst of machine check errors : some error logs may be not produced
	Display message until acknowledged.
	Duration settings
	Duration : 1 Day(s) • Apply to this message only. • Apply to all messages. • Apply to all messages, except those with a checked Ack
	<u>QK</u> <u>Cancel</u>
	Actions
	 Double click the Duration cell to open the Message Display Duration dialog box.
	 Select the Display message until acknowledged checkbox if you want to manually acknowledge the message before it is removed from the display and click OK to apply.
	 Enter a value in the Duration field and use the drop–down menu to select the duration unit: seconds, minutes, hours, or days.
	 The Apply to this message only radio button is selected by default. If required, select another radio button to apply the duration setting to other messages included in the filter.
	 Click OK to set the duration. The new duration value is displayed in the Duration cell and the Ack checkbox is deselected (see above).

Criteria	Description		
Severity Level	 This column is used to set message severity level(s): Information, Success, Warning, and Error. At least one severity level must be selected to define the filter. Actions Double click the Severity cell to open the dialog box. 		
	🍯 Web Page Dialog 🛛 🔀		
	Severity Levels (1 minimum)		
	Event Message : Burst of machine check errors : some error logs may be not produced		
	Severity levels Image: Severity levels		
	<u>QK</u> <u>Cancel</u>		
	 All severity levels are selected by default. Deselect the required checkbox to remove a severity level from the filter. 		
	 Select the Apply to all messages checkbox to apply this severity level to all the messages included in the filter. 		
	 Click OK to set and apply the severity level. The new severity level is displayed in the corresponding Severity cell. 		

Table 59. Standard event message filtering criteria

Advanced Event Message Filtering Criteria

Dote:

Advanced filtering criteria are reserved for advanced users and are to be used with care.

Criteria	Description				
Thresholding	nresholding is defined on a Count / Period basis aimed at routing gnificant messages only. Identical messages are counted and hen the number of messages indicated in the Threshold Count eld is reached within the period of time indicated in the Threshold eriod field, this message is selected for routing.				
	tions Double click the Threshold cell to open the dialog box.				
	🖉 Event Threshold Web Page Dialog 🛛 🔀				
	Event Threshold				
	Event Message : Burst of machine check errors : some error logs may be not produced				
	C Threshold Inactive □ Apply to all messages.				
	C Threshold Active				
	Threshold settings Threshold Count : 0				
	Threshold Period : 0 Day(s)				
	Apply to this message only. Apply to all messages. Apply to all "Threshold Inactive" messages. Apply to all "Threshold Active" messages.				
	 Select the Threshold Inactive radio button to deactivate thresholding. 				
	 Select the Apply to all messages checkbox to deactivate the thresholding setting on all the messages included in the filter. 				
	 Select the Threshold Active radio button to activate thresholding. 				
	 Enter the required number of messages in the Threshold Count field, the required period of time in the Threshold Period field, and use the drop-down menu to select the time unit: seconds, minutes, hours, or days. 				
	 Select the corresponding radio button to apply thresholding settings to one or more messages included in the filter. Note: 				
	The Apply to this message only radio button is selected by default.				
	 Click OK to set thresholding. The new Threshold Count and Threshold Period settings are displayed in the Threshold cell. Note: Inactive is displayed in the Threshold cell when thresholding is 				
	deactivated.				

Criteria	Description				
Clipping	Clipping is defined on a Count / Period basis aimed at routing a pre- defined number of messages only. Identical messages are counted and when the number of messages indicated in the Clipping Count field is reached within the period of time indicated in the Clipping Period field, no other messages will be selected for routing.				
	Actions				
	 Double click the Clipping cell to open the dialog box. 				
	Event Clipping Web Page Dialog				
	Event Clipping				
	Event Message : Burst of machine check errors : some error logs may be not produced				
	C Clipping Inactive				
	Clipping Active				
	Clipping Count : 0 Clipping Period : 0 Day(s)				
	 Apply to this message only. Apply to all messages. Apply to all "Clipping Inactive" messages. Apply to all "Clipping Active" messages. 				
	<u>OK</u> <u>Cancel</u>				
	 Select the Clipping Inactive radio button to deactivate clipping. 				
	 Select the Apply to all messages checkbox to deactivate the thresholding setting on all the messages included in the filter. 				
	- Select the Clipping Active radio button to activate clipping.				
	 Enter the required number of messages in the Clipping Count field, the required period of time in the Clipping Period field, and use the drop-down menu to select the time unit: seconds, minutes, hours, or days. 				
	 Select the corresponding radio button to apply clipping settings to one or more messages included in the filter. Note: The Apply to this message only radio button is checked by 				
	default.				
	 Click OK to set clipping. The new Clipping Count and Clipping Period settings are displayed in the Clipping cell. Note: 				
	Inactive is displayed in the Clipping cell when clipping is deactivated.				

Criteria	Description
Source	Each event message refers to a source (the component that gener- ated the message) and a target (the component referred to in the message) (see below). This feature allows messages to be filtered according to one or more Source string(s) and is particularly useful for debugging and troubleshooting.
	Actions
	 Double click the Source cell to open the dialog box.
	 Select a source filter from the Event Sources list.
	 If the list is empty, enter a source string in the Source filter field and click Add. The new source filter is displayed in the Event Sources list. (Example source strings can be viewed in history files).
	🚰 Event Sources Web Page Dialog 🛛 🔀
	Event Sources
	Event Message : Burst of machine check errors : some error logs may be not produced
	Source filter :
	Add
	<list empty=""> Eemove Remove All</list>
	Apply list to all messages.
	<u>OK</u>
	 Click Remove or Remove All to remove one or more source strings from the Event Sources list.
	 Repeat for each source string to be included in the filter.
	 Click Apply list to all messages to apply the specified source list to all the messages included in the filter.
	 Click OK to apply the source list. Specified is displayed in the Source cell. Note: All is displayed in the Source cell if the source is not specified.

Criteria	Description
Target	Each event message refers to a target (the component referred to in the message) and a source (the component that generated the message) (see above). This feature allows messages to be filtered according to one or more Target string(s) and is particularly useful for debugging and troubleshooting.
	Actions
	 Double click the Target cell to open the dialog box.
	 Select a target filter from the Event Targets list.
	 If the list is empty, enter a target string in the Target filter field and click Add. The new target filter is displayed in the Event Targets list. (Example target strings can be viewed in history files).
	Event Targets Web Page Dialog
	Event Targets
	Event Message : Burst of machine check errors : some error logs may be not produced
	Target filter :
	<list empty=""> Remove Remove All</list>
	Apply list to all messages.
	 Click Remove or Remove All to remove one or more target strings from the Event Targets list.
	 Repeat for each target string to be included in the filter.
	 Click Apply list to all messages to apply the specified target list to all the messages included in the filter.
	 Click OK to apply the target list. Specified is displayed in the Target cell. Note: All is displayed in the Target cell if the target is not specified.

Criteria	Description
Keyword	This feature allows messages to be filtered according to a Keyword contained in the messages. Any relevant word(s) contained in source / target strings can be used.
	Actions
	 Double click the Keywords cell to open the dialog box.
	 Select a keyword filter from the Event Keywords list.
	 If the list is empty, enter a keyword in the Keyword filter field and click Add. The new keyword filter is displayed in the Event Keywords list. (Example keywords can be viewed in history files).
	Event Keywords Web Page Dialog
	Event Keywords
	Event Message : Burst of machine check errors : some error logs may be not produced
	Keyword filter :
	<list empty=""></list>
	Remove All
	Apply list to all messages.
	 Click Remove or Remove All to remove one or more keyword from the Event Keywords list.
	 Repeat for each keyword to be included in the filter.
	 Click Apply list to all messages to apply the specified keyword list to all the messages included in the filter.
	 Click OK to apply the keyword list. Specified is displayed in the Keyword cell. Note: All is displayed in the Keywords cell if the keyword is not specified.

Table 60. Advanced event message filtering criteria

Appendix A. Specifications

- NovaScale 5080/5160 Server Specifications, on page A-2
- NovaScale 6080/6160 Server Specifications, on page A-4
- NovaScale 6320 Server Specifications, on page A-6

NovaScale 5080/5160 Server Specifications

NovaScale 5080/5160 Servers are delivered rack-mounted in 40U cabinets. The following web site may be consulted for general site preparation information: http://www.cs.bull.net/aise

Cabinet Dimensions / Weight					
L	Inpacked	Packed			
1300H		1300H			
Height:	195.5 cm (77.0 in)	Height:	200.0 cm (78.7 in)		
Width:	60.0 cm (23.6 in)	Width:	80.0 cm (31.5 in)		
Depth:	129.5 cm (51.0 in)	Depth:	140.0 cm (55.1 in)		
Weight (max.):	943 kg (2079 lb)	Weight (max.):	973 kg (2145 lb)		
	Service	Clearance			
Front		150 cm			
Rear		100 cm			
Side (left and righ	t)	100 cm			
	Operat	ing Limits			
Dry bulb temperat	ure range	+15°C to +30°C	. ,		
	/ · · · ·	Gradient 5°C/h (4	1°F/h)		
•	(non–condensing)	35 to 60% (Gradie	35 to 60% (Gradient 5%/h)		
Max. wet bulb tem	iperature	+24°C (+75.2°F)			
Moisture content		0.019 kg water/kg dry air			
Pressure / Elevation		Sea level <u><</u> 2500 m			
	Optimum Oper	ational Reliability			
Temperature		+ 22°C (<u>+</u> 3°C) (+	72°F (<u>+</u> 5°F)		
Hygrometry		50% (<u>+</u> 5%)	50% (<u>+</u> 5%)		
	Non–Ope	rating Limits			
Dry bulb temperat	ure range	+5°C to +50°C	(+41°F to +122°F)		
		Gradient 25°C/h ((77°F/h)		
Relative humidity	(non–condensing)	5 to 95% (Gradient 30%)			
Max. wet bulb tem	perature	+28°C (+82.4°F)			
Moisture content		0.024 kg water/kg dry air			
	Shippi	ng Limits			
Dry bulb temperat	ure range	-35°C to +65°C (-31°F to +149°F)			
		Gradient 25°C/h (. ,		
Relative humidity	(non-condensing)	5 to 95% Gradient 30%/h			
Α	coustic Power at Room		C (+68° F)		
	em Running		vstem Idle		
Lw(A) 6.3 Bels	-	Lw(A) 6.1 Bels			
、 /		· · /			

Power Cables				
PDU-0-7-M-32A				
AC (32A)	1 per PDU			
Cable type	3 x AWG10 (3 x 6 mm ² / #10US)			
Connector type	IEC60309–32A			
	Iodule			
AC (20A)	1 per CSS Module			
Cable type	3 x AWG12 (3 x 4mm ² / #12US)			
Connector type	IEC60309–32A			
It is mandatory for power lines and terminal boxes to be located within the imme- diate vicinity of the system and to be easily accessible. Each power line must be connected to a separate, independent electrical panel and bipolar circuit breaker. PDUs require an extra cable length of 1.5 meters for connection inside the cabinet.				
Electrical Specifications (power supplies are auto-sensing and auto-ranging)				
Current draw	15 A max. at 200 VAC input			
Power consumption	3000 VA (per full CSS module) 1500 VA (per PDU)			
Thermal dissipation	2700 W / 9250 BTU (per full CSS module) 1300 W / 4610 BTU (per PDU			
Eur	оре			
Nominal voltage	230 VAC (Phase / Neutral)			
/oltage range 207 – 244 VAC				
Frequency	50 Hz \pm 1%			
United State	s of America			
Nominal voltage	208 VAC (Phase / Neutral)			
Voltage range	182 – 229 VAC			
Frequency	60 Hz \pm 0.3%			
Ja	ban			
Nominal voltage	200 VAC (Phase / Neutral)			
Voltage range	188 – 212 VAC			
Frequency	60 Hz \pm 0.2%			
Bra	Brazil			
Nominal voltage	220 VAC (Phase / Neutral)			
Voltage range	212 – 231 VAC			
Frequency	60 Hz \pm 2%			
Breaker Protection	on (Mains Power)			
CSS module	20A Curve C			
PDU–20A	20A Curve C			
PDU–0–7–M–32A 32A Curve C				
Maximum inrush current	210A / per quarter period			
Table 61 NovaScale 5080/5160 Server specific				

Table 61. NovaScale 5080/5160 Server specifications

NovaScale 6080/6160 Server Specifications

The following web site may be consulted for general site preparation information: http://www.cs.bull.net/aise

NovaScale 6080/6160 Servers are delivered rack-mounted in 40U cabinets.

Cabinet Dimensions / Weight					
U	Inpacked	Packed			
1300H		1300H			
Height:	195.5 cm (77.0 in)	Height:	200.0 cm (78.7 in)		
Width:	60.0 cm (23.6 in)	Width:	80.0 cm (31.5 in)		
Depth:	129.5 cm (51.0 in)	Depth:	140.0 cm (55.1 in)		
Weight (max.):	943 kg (2079 lb)	Weight (max.):	973 kg (2145 lb)		
	Service	Clearance			
Front		150 cm			
Rear		100 cm			
Side (left and right	t)	100 cm			
	Opera	ting Limits			
Dry bulb temperat	ure range	+15°C to +30°C	(+59°F to +86°F)		
		Gradient 5°C/h (4	1°F/h)		
Relative humidity	.	35 to 60% (Gradie	35 to 60% (Gradient 5%/h)		
Max. wet bulb tem	iperature	+24°C (+75.2°F)			
Moisture content		0.019 kg water/kg dry air			
Pressure / Elevation		Sea level <u><</u> 2500 r	n		
Optimum Operational Reliability					
Temperature		+ 22°C (<u>+</u> 3°C) (+	+ 22°C (± 3°C) (+ 72°F (± 5°F)		
Hygrometry		50% (<u>+</u> 5%)	50% (<u>+</u> 5%)		
	Non–Ope	erating Limits			
Dry bulb temperature range		+5°C to +50°C	+5°C to +50°C (+41°F to +122°F)		
		Gradient 25°C/h ((77°F/h)		
Relative humidity	(non–condensing)	5 to 95% (Gradient 30%)			
Max. wet bulb tem	perature	+28°C (+82.4°F)			
Moisture content		0.024 kg water/kg	0.024 kg water/kg dry air		
	Shipp	ing Limits			
Dry bulb temperat	ure range	-35°C to +65°C (-31°F to +149°F)			
		Gradient 25°C/h ((77°F/h)		
Relative humidity	(non–condensing)	5 to 95% Gradient	: 30%/h		
А	coustic Power at Room	Temperature +20° C	C (+68° F)		
Syst	em Running	Sy	/stem Idle		
Lw(A) 6.3 Bels		Lw(A) 6.1 Bels			

diate vicinity of the system and to be easily accessible. Each power line must be connected to a separate, independent electrical panel and bipolar circuit breaker. PDUs require an extra cable length of 1.5 meters for connection inside the cabinet.Electrical Specifications (power supplies are auto-sensing and auto-ranging)Current draw15 A max. at 200 VAC input 3000 VA (per full CSS module) 1500 VA (per PDU)Power consumption15 A max. at 200 VAC input 3000 VA (per full CSS module) 1500 VA (per PDU)Thermal dissipation230 VAC (Phase / Neutral) 2700 W / 9250 BTU (per full CSS module) 1300 W / 4610 BTU (per PDUNominal voltage 230 VAC (Phase / Neutral) 207 - 244 VAC 50 Hz \pm 1%United States of AmericaNominal voltage Voltage range200 VAC (Phase / Neutral) 182 - 229 VAC 60 Hz \pm 0.3%OVAC (Phase / Neutral)Voltage range200 VAC (Phase / Neutral) <th colsp<="" th=""><th colspan="5">Power Cables</th></th>	<th colspan="5">Power Cables</th>	Power Cables				
Cable type 3 x AWG10 (3 x 6 mm² / #10US) IEC60309–32A CSS Module AC (20A) 1 per CSS Module Cable type 3 x AWG12 (3 x 4mm² / #12US) Connector type IEC60309–32A It is mandatory for power lines and terminal boxes to be located within the immediate vicinity of the system and to be easily accessible. Each power line must be connected to a separate, independent electrical panel and bipolar circuit breaker. PDUs require an extra cable length of 1.5 meters for connection inside the cabinet. Electrical Specifications (power supplies are auto-sensing and auto-ranging) Current draw 15 A max. at 200 VAC input 3000 VA (per PDU) Power consumption 200 VAC (Phase / Neutral) 1300 W / 4610 BTU (per full CSS module) 1300 W / 4610 BTU (per PDU Nominal voltage 230 VAC (Phase / Neutral) Voltage range 207 - 244 VAC Frequency 50 Hz ± 1% United States of America Nominal voltage Voltage range 200 VAC (Phase / Neutral) Voltage range 22						
Cable type 3 x AWG10 (3 x 6 mm² / #10US) IEC60309–32A CSS Module AC (20A) 1 per CSS Module Cable type 3 x AWG12 (3 x 4mm² / #12US) Connector type IEC60309–32A It is mandatory for power lines and terminal boxes to be located within the immediate vicinity of the system and to be easily accessible. Each power line must be connected to a separate, independent electrical panel and bipolar circuit breaker. PDUs require an extra cable length of 1.5 meters for connection inside the cabinet. Electrical Specifications (power supplies are auto-sensing and auto-ranging) Current draw 15 A max. at 200 VAC input 3000 VA (per PDU) Power consumption 200 VAC (Phase / Neutral) 1300 W / 4610 BTU (per full CSS module) 1300 W / 4610 BTU (per PDU Nominal voltage 230 VAC (Phase / Neutral) Voltage range 207 - 244 VAC Frequency 50 Hz ± 1% United States of America Nominal voltage Voltage range 200 VAC (Phase / Neutral) Voltage range 22	AC (32A)	1 per PDU				
Connector type IEC60309–32A CSS Module AC (20A) 1 per CSS Module Cable type 3 x AWG12 (3 x 4mm² / #12US) Connector type IEC60309–32A It is mandatory for power lines and terminal boxes to be located within the immediate vicinity of the system and to be easily accessible. Each power line must be connected to a separate, independent electrical panel and bipolar circuit breaker. PDUs require an extra cable length of 1.5 meters for connection inside the cabinet. Electrical Specifications (power supplies are auto-sensing and auto-ranging) Current draw Power consumption 150 VA (per FUI) 2700 W / 9250 BTU (per full CSS module) 1300 W / 4610 BTU (per PDU) 2700 W / 9250 BTU (per full CSS module) 1300 W / 4610 BTU (per PDU Nominal voltage 230 VAC (Phase / Neutral) Voltage range 207 - 244 VAC Frequency 50 Hz \pm 1% United States of America Nominal voltage Voltage range 208 VAC (Phase / Neutral) Voltage range 182 - 229 VAC 60 Hz \pm 0.3% Erequency 60 Hz \pm 0.2% Erequency		•				
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Cable type $3 \times AWG12 (3 \times 4mm^2 / #12US)$ IEC60309–32AIt is mandatory for power lines and terminal boxes to be located within the immediate vicinity of the system and to be easily accessible. Each power line must be connected to a separate, independent electrical panel and bipolar circuit breaker. PDUs require an extra cable length of 1.5 meters for connection inside the cabinet.Electrical Specifications (power supplies are auto-sensing and auto-ranging)Current drawPower consumption200 VA (per full CSS module) 1500 VA (per FUU)Thermal dissipation200 VAC (Phase / Neutral) 200 VA (per PDU)Nominal voltage 200 VAC (Phase / Neutral) 200 VA (Per Sud VAC 200 VAC (Phase / Neutral) 200 VAC (Phase / Neutral)Voltage range Frequency200 VAC (Phase / Neutral) 182 – 229 VAC 60 Hz \pm 0.3%BrazilNominal voltage 200 VAC (Phase / Neutral) 182 – 229 VAC 60 Hz \pm 0.3%Image of Marcina Sub VAC (Phase / Neutral) 182 – 229 VAC 60 Hz \pm 0.3%Dunited States of AmericaNominal voltage Voltage range Frequency200 VAC (Phase / Neutral) 182 – 229 VAC 60 Hz \pm 0.3%DuponVoltage range FrequencyBrazilNominal voltage 200 VAC (Phase / Neutral) 200 VAC (Phase / Neutral	AC (20A)	1 per CSS Module				
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BrazilNominal voltage220 VAC (Phase / Neutral)Voltage range212 – 231 VACFrequency60 Hz ± 2%Breaker ProtectionCSS modulePDU–20A20A Curve CPDU–0–7–M–32A32A Curve C	Voltage range	188 – 212 VAC				
Nominal voltage 220 VAC (Phase / Neutral) Voltage range 212 – 231 VAC Frequency 60 Hz ± 2% Breaker Protection CSS module 20A Curve C PDU–20A 20A Curve C PDU–0–7–M–32A 32A Curve C	Frequency	60 Hz \pm 0.2%				
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Frequency 60 Hz ± 2% Breaker Protection CSS module 20A Curve C PDU–20A 20A Curve C PDU–0–7–M–32A 32A Curve C	Nominal voltage	220 VAC (Phase / Neutral)				
Breaker Protection CSS module 20A Curve C PDU–20A 20A Curve C PDU–0–7–M–32A 32A Curve C	Voltage range	212 – 231 VAC				
CSS module20A Curve CPDU-20A20A Curve CPDU-0-7-M-32A32A Curve C	Frequency	60 Hz \pm 2%				
PDU-20A 20A Curve C PDU-0-7-M-32A 32A Curve C	Breaker F	Protection				
PDU–0–7–M–32A 32A Curve C	CSS module	20A Curve C				
	PDU–20A	20A Curve C				
Maximum inrush current 210A / per guarter period	PDU-0-7-M-32A	32A Curve C				
	Maximum inrush current	210A / per quarter period				

Table 62. NovaScale 6080/6160 Server specifications

NovaScale 6320 Server Specifications

The following web site may be consulted for general site preparation information: http://www.cs.bull.net/aise

NovaScale 6320 Servers are delivered rack-mounted in 40U cabinets.

Cabinet Dimensions / Weight					
Unpacked			Packed		
1300H		1300H			
Height:	195.5 cm (77.0 in)	Height:	200.0 cm (78.7 in)		
Width:	60.0 cm (23.6 in)	Width:	80.0 cm (31.5 in)		
Depth:	129.5 cm (51.0 in)	Depth:	140.0 cm (55.1 in)		
Weight (max.):	943 kg (2079 lb)	Weight (max.):	973 kg (2145 lb)		
	Service	Clearance			
Front		150 cm	150 cm		
Rear		100 cm			
Side (free side)		100 cm	100 cm		
Operating Limits					
Dry bulb temperature range		+15°C to +30°C	+15°C to +30°C (+59°F to +86°F)		
		Gradient 5°C/h (41°F/h)			
Relative humidity (non-condensing) Max. wet bulb temperature		35 to 60% (Gradient 5%/h)			
	iperature	+24°C (+75.2°F)			
Moisture content		0.019 kg water/kg dry air			
Pressure / Elevati			Sea level <u><</u> 2500 m		
	Optimum Ope	rational Reliability			
Temperature		+ 22°C (<u>+</u> 3°C) (+	+ 22°C (± 3°C) (+ 72°F (± 5°F)		
Hygrometry		50% (<u>+</u> 5%)			
Non–Operating Limits					
Dry bulb temperature range		+5°C to +50°C	+5°C to +50°C (+41°F to +122°F)		
		Gradient 25°C/h ((77°F/h)		
Relative humidity (non-condensing)		5 to 95% (Gradier	5 to 95% (Gradient 30%)		
Max. wet bulb temperature		+28°C (+82.4°F)	+28°C (+82.4°F)		
Moisture content		0.024 kg water/kg	0.024 kg water/kg dry air		
	Shipping Limits				
Dry bulb temperat	ure range	-35°C to +65°C	(–31°F to +149°F)		
		Gradient 25°C/h ((77°F/h)		
Relative humidity	(non–condensing)	5 to 95% Gradient	: 30%/h		
А	coustic Power at Room	Temperature +20° C	C (+68° F)		
Syst	em Running	Sy	/stem Idle		
Lw(A) 6.3 Bels		Lw(A) 6.1 Bels	Lw(A) 6.1 Bels		

Cable type Connector type CSS M AC (20A) Cable type	1 per PDU 3 x AWG10 (3 x 6 mm ² / #10US) IEC60309–32A odule 1 per CSS Module 3 x AWG12 (3 x 4mm ² / #12US) IEC60309–32A al boxes to be located within the imme- y accessible. Each power line must be			
Cable type Connector type CSS M AC (20A) Cable type	3 x AWG10 (3 x 6 mm ² / #10US) IEC60309–32A odule 1 per CSS Module 3 x AWG12 (3 x 4mm ² / #12US) IEC60309–32A al boxes to be located within the imme- y accessible. Each power line must be			
Cable type Connector type CSS M AC (20A) Cable type	3 x AWG10 (3 x 6 mm ² / #10US) IEC60309–32A odule 1 per CSS Module 3 x AWG12 (3 x 4mm ² / #12US) IEC60309–32A al boxes to be located within the imme- y accessible. Each power line must be			
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CSS M AC (20A) Cable type	1 per CSS Module 3 x AWG12 (3 x 4mm ² / #12US) IEC60309–32A al boxes to be located within the imme- y accessible. Each power line must be			
Cable type	3 x AWG12 (3 x 4mm ² / #12US) IEC60309–32A al boxes to be located within the imme- y accessible. Each power line must be			
Cable type	3 x AWG12 (3 x 4mm ² / #12US) IEC60309–32A al boxes to be located within the imme- y accessible. Each power line must be			
	IEC60309–32A al boxes to be located within the imme- y accessible. Each power line must be			
	y accessible. Each power line must be			
It is mandatory for power lines and terminal boxes to be located within the imme- diate vicinity of the system and to be easily accessible. Each power line must be connected to a separate, independent electrical panel and bipolar circuit breaker. PDUs require an extra cable length of 1.5 meters for connection inside the cabinet.				
Electrical Specifications (power supplies are auto-sensing and auto-ranging)				
· · · · ·	15 A max. at 200 VAC input			
Power consumption	3000 VA (per full CSS module) 1500 VA (per PDU)			
	2700 W / 9250 BTU (per full CSS module) 1300 W / 4610 BTU (per PDU)			
Europe				
Nominal voltage	230 VAC (Phase / Neutral)			
Voltage range	207 – 244 VAC			
Frequency	50 Hz \pm 1%			
United States of America				
Nominal voltage	208 VAC (Phase / Neutral)			
Voltage range	182 – 229 VAC			
Frequency	60 Hz \pm 0.3%			
Japan				
Nominal voltage	200 VAC (Phase / Neutral)			
Voltage range	188 – 212 VAC			
Frequency	60 Hz \pm 0.2%			
Brazil				
Nominal voltage	220 VAC (Phase / Neutral)			
Voltage range	212 – 231 VAC			
Frequency	$60~{ m Hz}\pm2\%$			
Breaker P	rotection			
CSS module	20A Curve C			
PDU–20A	20A Curve C			
PDU-0-7-M-32A	32A Curve C			
Maximum inrush current	210A / per quarter period			

 Table 63.
 NovaScale 6320 Server specifications

Glossary

A

AC: Alternating **C**urrent generated by the power supply. See DC.

ACPI: Advanced Configuration and Power Interface. An industry specification for the efficient handling of power consumption in desktop and mobile computers. ACPI specifies how a computer's BIOS, operating system, and peripheral devices communicate with each other about power usage.

Address: A label, name or number that identifies a location in a computer memory.

AMI: American Megatrends Incorporated.

ANSI: American National Standards Institute.

API: Application **P**rogram Interface. The specific method prescribed by a computer operating system or by an application program by which a programmer writing an application program can make requests of the operating system or another application.

Archive: (Archive file). A file that is a copy of a history file. When a history file is archived, all messages are removed from the history file.

ASCII: American National Standard Code for Information Interchange. A standard number assigned to each of the alphanumeric characters and keyboard control code keys to enable the transfer of information between different types of computers and peripherals.

В

Backup: A copy of data for safe–keeping. The data is copied form computer memory or disk to a floppy disk, magnetic tape or other media.

Backup battery: The battery in a computer that maintains real–time clock and configuration data when power is removed.

Baud rate: The speed at which data is transmitted during serial communication.

BERR: Bus Error signal pin used to signal a global machine check abort condition.

BINIT: Bus Initialization signal pin used to signal a global fatal machine check condition.

BIOS: Basic Input / **O**utput **S**ystem. A program stored in flash EPROM or ROM that controls the system startup process.

BIST: Built-In Self-Test. See POST.

Bit: Derived from **BI**nary digi**T**. A bit is the smallest unit of information a computer handles.

BTU: British Thermal Unit.

Byte: A group of eight binary digits (bit) long that represents a letter, number, or typographic symbol.

С

Cache Memory: A very fast, limited portion of RAM set aside for temporary storage of data for direct access by the microprocessor.

CD-ROM: Compact **D**isK **R**ead-**O**nly **M**emory. High-capacity read-only memory in the form of an optically readable compact disk.

Cell: The smallest set of hardware components allocated to a single OS. A cell is functionally defined by:

- the number of available processors
- memory capacity
- I/O channel capacity.

CellBlock: A group of interconnected cells within a single domain. See Central Subsystem.

Central Subsystem: A group of interconnected cells gathered within a single domain. See CellBlock.

Chip: Synonym for integrated circuit. See IC.

Clipping: A PAM Event filter criterion. Clipping is defined on a Count / Time basis aimed at routing a pre-defined number of messages only. Identical messages are counted and when the number of messages indicated in the **Count** field is reached within the period of time indicated in the **Time** field, no other messages will be selected for routing.

CMC: Corrected Memory Check condition is signaled when a hardware corrects a machine check error or when a MCA condition is corrected by firmware.

CMCI: Corrected Memory Check Interrupt.

CMCV: Corrected Memory Check Vector.

CMOS: Complementary Metal Oxide

Semiconductor. A type of low–power integrated circuits. System startup parameters are stored in CMOS memory. They can be changed via the system setup utility.

COM: Component Object Model. Microsoft technology for component based application development under Windows.

COM +: Component Object Model +. Microsoft technology for component based application development under Windows. The external part of the PAM software package is a COM+ application.

COM1 or COM2: The name assigned to a serial port to set or change its address. See Serial Port.

Command: An instruction that directs the computer to perform a specific operation.

Configuration: The way in which a computer is set up to operate. Configurable options include CPU speed, serial port designation, memory allocation, ...

Configuration Tasks: A PAM feature used to configure and customize the server.

Control Pane: One of the three areas of the PAM web page. When an item is selected in the **PAM Tree** pane, details and related commands are displayed in the **Control** pane. See PAM Tree pane and Status pane.

Core Unit: A main CSS module unit interconnecting the MIO, MQB, MSX and MFL boards. See MIO, MQB, MSX, MFL.

COS: Cluster Operating System.

CPE: Corrected Platform Error.

CPEI: Corrected Platform Error Interrupt.

CPU: Central **P**rocessing **U**nit. See Microprocessor.

CSE: Customer Service Engineer.

CSS: Central Sub–System. See CellBlock.

CSS Module: A MidPlane with all its connected components (QBBs, IO boards, PMB) and utility devices. See Module.

D

D2D: DC to DC converter.

DC: Direct **C**urrent generated by the power supply. See AC.

Default Setting: The factory setting your server uses unless instructed otherwise.

Density: The capacity of information (bytes) that can be packed into a storage device.

Device Driver: A software program used by a computer to recognize and operate hardware.

DIB: Device Interface Board. The DIB provides the necessary electronics for the Internal Peripheral Drawer. See IPD.

DIG64: Developer Interface Guide for IA64.

DIM Code: Device Initialization Manager. Initializes different BUSes during the BIOS POST.

DIMM: Dual In-line Memory Module – the smallest system memory component.

Disk Drive: A device that stores data on a hard or floppy disk. A floppy disk drive requires a floppy disk to be inserted. A hard disk drive has a permanently encased hard disk.

DMA: Direct Memory Access. Allows data to be sent directly from a component (e.g. disk drive) to the memory on the motherboard). The microprocessor does not take part in data transfer enhanced system performance.

DMI: Desktop Management Interface. An industry framework for managing and keeping track of hardware and software components in a system of personal computers from a central location.

DNS: Domain **N**ame **S**erver. A server that retains the addresses and routing information for TCP/IP LAN users.

Domain: is the coherent set of resources allocated to run a customer activity, i.e. the association –at boot time– of a Partition, an OS instance (including applications) and associated LUNs and an execution context including execution modes and persistent information (e.g. time, date of the OS instance). Domain definitions and initializations are performed via PAM. A Domain can be modified to run the same OS instance on a different Partition. When a Domain is running, its resources are neither visible nor accessible to other running Domains.

Domain Identity: a PAM Domain management logical resource. This resource contains context information related to the Customer activity running in a domain. The most visible attribute of this resource is the name that the Customer gives to the activity. For each domain created, the Domain management feature allows the operator to define a new activity or choose an activity from the list of existing activities. See Domain.

Domain Manager: A PAM feature used to power on / off and manage server domains. See Domain.

DPS: Distributed Power Supply.

DRAM: Dynamic Random Access Memory is the most common type of random access memory (RAM).

Ε

ECC: Error Correcting Code.

EEPROM: Electrically Erasable Programmable Read-Only Memory. A type of memory device that stores password and configuration data. See also EPROM.

EFI: Extensible Firmware Interface.

EFIMTA: EFI Modular Test Architecture.

EFI Shell: The EFI (Extensible Firmware Interface) Shell is a simple, interactive user interface that allows EFI device drivers to be loaded, EFI applications to be launched, and operating systems to be booted. In addition, the EFI Shell provides a set of basic commands used to manage files and the system environment variables. See Shell.

EMI: Electro-Magnetic Interference.

EPROM: Erasable Programmable Read-Only Memory. A type of memory device that is used to store the system BIOS code. This code is not lost when the computer is powered off.

ERC: Error and **R**eset **Controller**. This controller allows PAM software to control error detection and reset propagation within each pre-defined CSS partition. The ERC is initialized by PAM software to ensure a partition-contained distribution of the reset, error, interrupt and event signals; and to contribute to error signaling and localization at platform level.

ERP: Error Recovery Procedure.

ESD: Electro**S**tatic **D**ischarge. An undesirable discharge of static electricity that can damage equipment and degrade electrical circuitry.

Event: The generation of a message (event message) by a software component and that is directed to the Event Manager.

Event address: Defines the destination for a message sent over a specified event channel. An address is one of: the name of a history file (for the HISTORY channel), an e-mail address (for the EMAIL channel), the name of a user group (for the WEB channel), the SNMP Manager IP address (for the SNMP channel).

Event channel: Defines how the Event Manager sends an event message. An event channel is one of: HISTORY (the message is logged in a history file), EMAIL (the message is sent to an e-mail address), WEB (the message is stored for analysis from the PAM web user interface), SNMP (the message is sent as an SNMP trap to the selected SNMP application). **Event filter:** A list of selected messages among all possible event messages. If an event message is not included in the filter, the Event Manager discards the message.

Event Manager: A PAM feature used to forward event messages over a configured event channel. See Event.

Event message: A message sent by a software component to the Event Manager for routing to a destination that is configured by an administrator.

Event subscription: An object that defines the event channel, address, and filter for sending an event message. If no such object is defined, the event message is discarded.

Exclusion: Logical removal of a redundant faulty hardware element until it has been repaired or replaced. The hardware element remains physically present in the configuration, but is no longer detected by PAM software and can no longer be used by a domain.

External Disk Subsystem: Disk subsystem housed inside the NovaScale cabinet.

F

Fail–over: Failover is a backup operational mode in which the functions of a system component (such as a processor, server, network, or database, for example) are assumed by secondary system components when the primary component becomes unavailable through either failure or scheduled down time.

FAME: Flexible Architecture for Multiple Environments.

FAST WIDE: A standard 16-bit SCSI interface providing synchronous data transfers of up to 10 MHz, with a transfer speed of 20M bytes per second.

FC: Fibre Channel.

FCAL: Fibre Channel Arbitrated Loop.

FCA: Fibre Channel Adapter.

FCBQ: Fan Control Board for QBB.

FCBS: Fan Control Board for SPS.

FDA: Fibre Disk Array.

FDD: Floppy Disk Drive.

Flash EPROM: Flash Erasable Programmable Read-Only Memory. A type of memory device that is used to store the the system firmware code. This code can be replaced by an updated code from a floppy disk, but is not lost when the computer is powered off.

Firewall: A set of related programs, located at a network gateway server, that protects the resources of a private network from users from other networks.

Firmware: an ordered set of instructions and data stored to be functionally independent of main storage.

Format: The process used to organize a hard or floppy disk into sectors so that it can accept data. Formatting destroys all previous data on the disk.

FPB: FAME **P**ower **B**oard (FAME: Flexible Architecture for Multiple Environments).

FPGA: Field **P**rogrammable **G**ate **A**rray. A gate array that can reprogrammed at run time.

FRB: Fault **R**esilient **B**oot. A server management feature. FRB attempts to boot a system using the alternate processor or DIMM.

FRU: Field Replaceable Unit. A component that is replaced or added by Customer Service Engineers as a single entity.

FSS: FAME Scalability **S**witch. Each CSS Module is equipped with 2 Scalability Port Switches providing high speed bi–directional links between server components. See SPS.

FTP: File Transfer Protocol. A standard Internet protocol: the simplest way of exchanging files between computers on the Internet. FTP is an application protocol that uses Internet TCP/IP protocols. FTP is commonly used to transfer Web page files from their creator to the computer that acts as their server for everyone on the Internet. It is also commonly used to download programs and other files from other servers.

FWH: FirmWare Hub.

G

GB: GigaByte: 1,073,741,824 bytes. See Byte.

Global MCA: Machine Check Abort is visible to all processors, in a multiprocessor system and will force all of them to enter machine check abort.

GUI: Graphical User Interface.

GTS: Global Telecontrol Server.

Н

HA: High **A**vailability. Refers to a system or component that is continuously operational for a desirably long length of time.

HAL: Hardware Abstraction Layer.

HA CMP: High Availability Clustered MultiProcessing.

Hard Disk Drive: HDD. See Disk Drive.

Hardware: The physical parts of a system, including the keyboard, monitor, disk drives, cables and circuit cards.

Hardware Monitor: A PAM feature used to supervise server operation.

HBA: Host Bus Adapter.

HDD: Hard Disk Drive. See Disk Drive.

History File: A file in which the History Manager logs informative messages or error messages relating to system activity. Messages are sent from source components to target components.

History Manager: The component running on the PAP Windows operating system that logs messages to history files.

HMMIO Space: High Memory IO Space.

HPB: Hot Plug Board. This board provides an interlock switch on each IO Box PCI slot for hot–swapping PCI boards. See P–HPB.

HPC: High Performance Computing.

Hot plugging: The operation of adding a component without interrupting system activity.

Hot swapping: The operation of removing and replacing a faulty component without interrupting system activity.

HTTP: HyperText Transfer **P**rotocol. In the World Wide Web, a protocol that facilitates the transfer of hypertext–based files between local and remote systems.

HW Identifier: Number (0 - F) used to identify Cellblock components. This number is identical to PMB code–wheel position.

I2C: Intra Integrated **C**ircuit. The I2C (Inter–IC) bus is a bi–directional two–wire serial bus that provides a communication link between integrated circuits (ICs).

The I2C bus supports 7–bit and 10–bit address space devices and devices that operate under different voltages.

IA64: is a **64**-bit Intel processor **A**rchitecture based on Explicitly Parallel Instruction Computing (EPIC). The Itanium processor is the first in the Intel line of IA-64 processors.

IB: Infini Band.

IC: Integrated **C**ircuit. An electronic device that contains miniaturized circuitry. See Chip.

ICH2: I/O Controller Hub 2, component that contains the fundamental I/O interfaces required by the system. Flash memory, Keyboard, USB and IDE device interface.

ICH4: I/O Controller Hub 4.

ICMB: Intelligent Chassis Management Bus.

ID: A number which uniquely identifies a device on a bus.

IDE: Integrated **D**rive **E**lectronics. A type of hard disk drive with the control circuitry located inside the disk drive rather than on a drive controller card.

Identity: See Domain Identity.

IIS: Internet Information **S**erver. A group of Internet servers (including a Web or HTTP server and a FTP server) with additional capabilities for Microsoft Windows NT and Microsoft Windows (and later) operating systems.

I/O: Input /**O**utput. Describes any operation, program, or device that transfers data to or from a computer.

Interface: A connection between a computer and a peripheral device enabling the exchange of data. See Parallel Port and Serial Port.

Internal Disk Subsystem: Disk subsystem housed inside the NovaScale Internal Peripheral Drawer (IPD).

IOB: Input / **O**utput **B**oard. The IOB connects up to 11 PCI–X boards.

IOC: Input / **O**utput Board **C**ompact. The IOC connects up to 6 PCI–X boards.

IOL: I/O Board Legacy. The IOL provides:

- I/O controller Hub
- USB ports
- 10/100/1000 Ethernet controller
- Video controller
- Serial / debug port

IOR: I/O Board Riser. The IOR provides:

- I/O controller Hub
- USB ports
- 10/100/1000 Ethernet controller
- Video controller
- Serial / debug port

IP: Internet **P**rotocol. The protocol by which data is sent from one computer to another via the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet.

IPD: Internal **P**eripheral **D**rawer. The IPD houses legacy peripherals (DVD–Rom drive, USB port) and SCSI system disks.

IPF: Itanium Processor Family.

IPL: Initial **P**rogram Load. It defines the firmware functional phases during the system initialization.

IPMB: Intelligent Platform Management Bus.

IPMI: Intelligent Platform Management Interface.

ISA: Industry Standard Architecture. An industry standard for computers and circuit cards that transfer 16 bits of data at a time.

J

Jumper: A small electrical connector used for configuration on computer hardware.

Κ

KVM: Keyboard Video Monitor.

KVM switch: the Keyboard Video Monitor switch allows the use of a single keyboard, monitor and mouse for more than one module.

L

LAN: Local Area Network. A group of computers linked together within a limited area to exchange data.

LD: Logical **D**isk. A Storeway FDA 1x00/2x00 logical disk (or LUN) is visible to the OS as a Disk. See LUN and PD (Physical Disk).

LED: Light Emitting Diode. A small electronic device that glows when current flows through it.

Legacy Application: An application in which a company or organization has already invested considerable time and money. Typically, legacy applications are database management systems (DBMSs) running on mainframes or minicomputers.

Licensing Number: When you install an application protected by a system serial number, you are requested to supply this serial number.For optimum flexibility, PAM software allows you to replace the physical serial number by a logical licensing number so that you can run the application on any physical partition and, in the case of extended systems, on any of the Central Subsystems within the extended configuration.

LID: Local Interrupt Identifier (CPU).

Local Disk Subsystem: Disk subsystem housed inside the NovaScale cabinet and not connected to a SAN.

Local MCA: Machine Check Abort is detected and handled by a single processor and is invisible to the other processor.

Locking: Means of functionally limiting access to certain hardware elements. Locked hardware elements can no longer be accessed by the current domain, but are still physically available for use by other domains. Previously locked elements can be unlocked so that they can be accessed by the domain.

LPT1 or LPT2: The name assigned to a parallel port to specify its address. See Parallel Port.

LS240: Laser Servo super diskette holding up to 240 Mb.

LUN: Logical Unit Number. Term used to designate Logical Storage Units (logical disks) defined through the configuration of physical disks stored in a mass storage cabinet.

LVDS: Low Voltage Differential SCSI.

Μ

MAESTRO: Machine Administration Embedded Software Real Time Oriented. Part of the PAM software package embedded on the PMB board.

MCA: Machine Check Abort. See also Local MCA and Global MCA. **Memory:** Computer circuitry that stores data and programs. See RAM and ROM.

Memory bank: The minimum quantity of memory used by the system. It physically consists of four memory DIMMs.

MFL: Midplane Fan & Logistics board. The MFL houses the Fan Boxes and is connected to the MIO and MQB. See MIO, MQB.

Microprocessor: An integrated circuit that processes data and controls basic computer functions.

Midplane: Mid–**P**lane. All system hardware components are connected to the Midplane.

MIMD: Multiple Instruction Multiple Data

MIO: Midplane Input / **O**utput board. The MIO connects one or two IOC boards and the PMB. See Core Unit.

Mirrored volumes: A mirrored volume is a fault-tolerant volume that duplicates your data on two physical disks. If one of the physical disks fails, the data on the failed disk becomes unavailable, but the system continues to operate using the unaffected disk.

Module: a Midplane Board with all its connected components and utility devices. See CSS Module and MP.

MQB: Midplane **QBB** board. The MQB connects one or two QBBs and one or two IPDs. See QBB and IPD.

MSX: Midplane SPS & XPS board. The MSX houses a B–SPS switch and is connected to the MIO and the MQB. There are two MSX boards in a CSS module. All SP connections between a QBB and an IOC use an MSX. See B–SPS, MIO, MQB.

MTBF: Mean Time Between Failure. An indicator of expected system reliability calculated on a statistical basis from the known failure rates of various components of the system. Note: MTBF is usually expressed in hours.

Multimedia: Information presented through more than one type of media. On computer systems, this media includes sound, graphics, animation and text.

Multitasking: The ability to perform several tasks simultaneously. Multitasking allows you to run multiple applications at the same time and exchange information among them. See Task.

Multithreading: The ability to manage more than one user/program or multiple requests by the same user/program at a time without running multiple copies of an application. Each user/program request is kept track of as a thread. See Thread.

Ν

NFS: Network File System. A proprietary distributed file system that is widely used by TCP/IP vendors. Note: NFS allows different computer systems to share files, and uses user datagram protocol (UDP) for data transfer.

NMI: Non-Maskable Interrupt.

NUMA: Non Uniform Memory Access. A method of configuring a cluster of microprocessors in a multiprocessing system so that they can share memory locally, improving performance and the ability of the system to be expanded.

nsh: nsh stands for **n**ew **sh**ell. See Shell and EFI Shell.

NVRAM: Non Volatile Random Access Memory. A type of RAM that retains its contents even when the computer is powered off. See RAM and SRAM.

0

OF: Open **F**irmware. Firmware controlling a computer prior to the Operating System.

Operating System: See OS.

OS: Operating System. The software which manages computer resources and provides the operating environment for application programs.

Ρ

PAL: Processor Abstraction Layer: processor firmware that abstracts processor implementation differences. See also SAL.

PAM: Platform Administration & Maintenance.

PAM software: Platform Administration & Maintenance software. One part (PAP application and the PamSite WEB site) runs on the PAP unit. The other part (MAESTRO) is embedded on the PMB board.

PAM Tree pane: One of the three areas of the PAM web page. Server hardware presence and functional status are displayed in the PAM Tree pane. See Status pane and Control pane.

PAP unit: Platform Administration Processor unit. The PC hosting all server administration software. **PAP application:** Platform Administration Processor application. Part of PAM software, PAP application is a Windows COM+ application running on PAP unit.

Parallel Port: Connector allowing the transfer of data between the computer and a parallel device.

PARM request: the PARM application is designed to handle Requests issued by the CSE (Customer Service Engineer)

Partition: Division of storage space on a hard disk into separate areas so that the operating system treats them as separate disk drives.

Password: A security feature that prevents an unauthorized user from operating the system.

PCI: Peripheral Component Interconnect. Bus architecture supporting high-performance peripherals.

PD: Physical **D**isk. A Storeway FDA 1300/2300 physical disk is not visible to the OS. See LD.

PDU: Power **D**istribution **U**nit. Power bus used for the connection of peripheral system components.

Permanence: Property of a history file that determines whether or not the history file can be modified or deleted from the PAM user interface. Permanence is either *Static* (cannot be modified) or *Dynamic* (can be modified).

P–HPB: PCI Hot Plug Board. This board provides an interlock switch on each IO Box PCI slot for hot–swapping PCI boards. See HPB.

PIC: Platform Instrumentation Control.

ping: A basic Internet program that lets you verify that a particular IP address exists and can accept requests. The verb "to ping" means the act of using the ping utility or command.

PIROM: Processor Information **ROM**. Processor Information ROM (PIROM) contains information about the specific processor in which it resides. This information includes robust addressing headers to allow for flexible programming and forward compatibility, core and L2 cache electrical specifications, processor part and S–spec numbers, and a 64–bit processor number.

PMB: Platform **M**anagement **B**oard. Links the server to the PAP unit.

PNP: Plug a**N**d **P**lay. The ability to plug a device into a computer and have the computer recognize that the device is there.

POST: Power On Self Test. When power is turned on, POST (Power–On Self–Test) is the diagnostic testing sequence (or "starting program") that a computer runs to determine if hardware is working correctly.

PROM: Programmable Read-Only Memory.

PUID: PAM Universal/Unique IDentifier. PAM software allocates a PUID (PAM Universal / Unique Identifier) to each hardware / software object to guarantee unambiguous identification. The PUID for each hardware element can be obtained by hovering the mouse over the corresponding element in the PAM tree, e.g.: PAM:/CELLSBLOCK_<NAME>/MODULE_x/QBB_ y/CPU_y.

Q

QBB: Quad Brick Board. The QBB is the heart of the Bull NovaScale Server, housing 4 Itanium [®] 2 processors and 16 DIMMs. Each QBB communicates with other CSS Module components via 2 high–speed bidirectional Scalability Port Switches.

See SPS or FSS.

R

RAID: Redundant Array of Independent Disks. A method of combining hard disk drives into one logical storage unit for disk-fault tolerance.

RAM: Random Access Memory. A temporary storage area for data and programs. This type of memory must be periodically refreshed to maintain valid data and is lost when the computer is powered off. See NVRAM and SRAM.

RAS: Reliability, Availability, Serviceability.

Real-time clock: The Integrated Circuit in a computer that maintains the time and date.

RFI: Radio Frequency Interference.

RJ45: 8-contact regular jack.

RMC: Remote Maintenance Console.

ROM: Read-Only Memory. A type of memory device that is used to store the system BIOS code. This code cannot be altered and is not lost when the computer is powered off. See BIOS, EPROM and Flash EPROM.

RS-232 Port: An industry standard serial port. See Serial Port.

RSF: Remote Service Facilities.

RTC: Real Time Clock.

S

S@N.IT: SAN Administration Tool.

SAL: System Abstraction Layer. Firmware that abstract system implementation differences in IA–64 platform. See also PAL.

SAN: Storage Area Network. A high–speed special–purpose network that interconnects different kinds of data storage devices with associated data servers on behalf of a larger network of users.

SAPIC: Streamlined Advanced Programmable Interrupt Controller message.

SBE: Single Bit Error.

Scheme: Configuration file ensuring optimum use and compatibility of the physical and logical resources used to simultaneously run multiple domains.

SCI: Scalable Coherent Interface.

SCSI: Small Computer System Interface. An input and output bus that provides a standard interface used to connect peripherals such as disks or tape drives in a daisy chain.

SDR: Sensor Data Record.

SDRAM: Synchronous Dynamic Random Access Memory. A type of DRAM that runs at faster clock speeds than conventional memory. See DRAM.

SEL: System Event Log. A record of system management events. The information stored includes the name of the event, the date and time the event occurred and event data. Event data may include POST error codes that reflect hardware errors or software conflicts within the system.

Serial Communication: Data sent sequentially, one bit at a time.

Serial Port: Connector that allows the transfer of data between the computer and a serial device. See COM1 or COM 2.Shell is a Unix term for the interactive user interface with an operating system.

SIO: Server I/O / Super I/O.

Shell: The Shell is the layer of programming that understands and executes the commands a user enters. As the outer layer of an operating system, the Shell can be contrasted with the kernel, the inmost layer or core of services of an operating system. See EFI Shell.

SIOH: Server **I/O H**ub. This component provides a connection point between various I/O bridge components and the Intel 870 chipset.

SMBIOS: System Management BIOS.

SM-BUS: System Management Bus.

SMIC: Server Management Interface Chip.

SMP: Symmetrical Multi Processor. The processing of programs by multiple processors that share a common operating system and memory.

SNC: Scalable Node Controller. The processor system bus interface and memory controller for the Intel870 chipset. The SNC supports both the Itanium2 processors, DDR SDRAM main memory, a Firmware Hub Interface to support multiple Firmware hubs, and two scalability ports for access to I/O and coherent memory on other nodes, through the FSS.

SNM: System Network Module.

SNMP: Simple Network Management Protocol. The protocol governing network management and the monitoring of network devices and their functions.

Source: Each message refers to a source (the resource that generated the message) and a target (the component referred to in the message). This feature can be allows messages to be filtered according to one or more **Source** string(s) and is particularly useful for debugging and troubleshooting. See Target.

SPD: Serial Presence Detect. DIMM PROM.

SPS: Scalability **P**ort **S**witch. Each CSS Module is equipped with 2 Scalability Port Switches providing high speed bi–directional links between system components. See FSS.

SRAM: Static **RAM**. A temporary storage area for data and programs. This type of memory does not need to be refreshed, but is lost when the system is powered off. See NVRAM and RAM.

SSI: Server System Infrastructure.

Status Pane: One of the three areas of the PAM web page. Provides quick access to CSS Module availability status, server functional status, and pending event message information. See also Control pane and PAM Tree pane.

SVGA: Super Video Graphics Array.

Т

Target: Each message refers to a target (the component referred to in the message), identified by its PUID, and a source (the component that generated the message). This feature allows messages to be filtered according to one or more **Target** string(s) and is particularly useful for debugging and troubleshooting. See Source and PUID.

Task: Each message refers to a target (the component referred to in the message), identified by its PUID, and a source (the component that generated the message). This feature allows messages to be filtered according to one or more **Target** string(s) and is particularly useful for debugging and troubleshooting. See Source and PUID.

TCP: Transmission **C**ontrol **P**rotocol. A set of rules (protocol) used along with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet.

TCP/IP: Transmission **C**ontrol **P**rotocol / Internet **P**rotocol. The basic communication language or protocol of the Internet.

T&D: Tests and Diagnostics.

Thresholding: A PAM Event filter criterion. Thresholding is defined on a Count / Time basis aimed at routing significant messages only. Identical messages are counted and when the number of messages indicated in the **Count** field is reached within the period of time indicated in the **Time** field, this message is selected for routing.

U

UART: a Universal Asynchronous Receiver Transmitter. The microchip with programming that controls a computer interface to its attached serial devices. **ULTRA SCSI:** An enhanced standard 16–bit SCSI interface providing synchronous data transfers of up to 20 MHz, with a transfer speed of 40M bytes per second. It is also called Fast-20 SCSI.

UML: Unified Modeling Language. A standard notation for the modeling of real–world objects as a first step in developing an object–oriented design methodology.

UPS: Uninterruptible **P**ower **S**upply. A device that allows uninterrupted operation if the primary power source is lost. It also provides protection from power surges.

URL: Uniform / **U**niversal **R**esource Locator. The address of a file (resource) accessible on the Internet.

USB: Universal Serial Bus. A plug–and–play interface between a computer and add–on devices. The USB interface allows a new device to be added to your computer without having to add an adapter card or even having to turn the computer off.

V

VCC: Voltage Continuous Current.

VGA: Video Graphics Array.

VI: Virtual Interface.

Visibility: A property of a history file. Visibility is either *System* (the history file is predefined by the PAM software and is visible only to an administrator) or *User* (the history file is created by an administrator and is visible to both an administrator and an operator).

VLAN: Virtual Local Area Network. A local area network with a definition that maps workstations on some other basis than geographic location (for example, by department, type of user, or primary application).

VxWORKS: Platform Management Board Operating System.

W

WAN: Wide Area Network. Geographically dispersed telecommunications network. The term distinguishes a broader telecommunication structure from a local area network (LAN).

WBEM: Web Based Enterprise Management.

WMI: Windows Management Interface.

WOL: A feature that provides the ability to remotely power on a system through a network connection.

Χ

XML: eXtended MarkUp Language. A flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere.

XSP: eXtended Scalable Port.

Y

No entries.

Ζ

No entries.

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