

HP Cluster Platform

Voltaire InfiniBand Interconnects
Read This First: Documentation Roadmap



This document roadmap describes how to access the documentation for Voltaire InfiniBand switches and software.

This guide supports the following HP part numbers:

HP Part Number	Hardware Descriptions
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Voltaire 4036

519571-B21	Voltaire InfiniBand 4X QDR 36-Port Managed Switch
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Voltaire 4700

590200-B21	Voltaire InfiniBand QDR 324-Port Switch Chassis
590201-B21	Voltaire InfiniBand QDR 324-Port Switch Fabric Board
590202-B21	Voltaire InfiniBand QDR 648-Port Switch Fabric Board
590203-B21	Voltaire InfiniBand QDR 324-Port Switch 18-Port Line Board
590204-B21	Voltaire InfiniBand QDR 324-Port Switch Management Module

Voltaire 2004/2012

409370-B21	Voltaire InfiniBand DDR 96-Port Switch Chassis
409371-B21	Voltaire InfiniBand DDR 288-Port Switch Chassis
450697-B21	Voltaire InfiniBand DDR Rev B 96-Port Switch Chassis
450699-B21	Voltaire InfiniBand DDR Rev B 288-Port Switch Chassis
450702-B21	Voltaire InfiniBand DDR Rev B 24-Port Line Board
450698-B21	Voltaire InfiniBand DDR Rev B 96-Port Fabric Board
450700-B21	Voltaire InfiniBand DDR Rev B 288-Port Fabric Board

Voltaire 9024/9096/9288

409367-B21	Voltaire InfiniBand 4X DDR 24-Port Internally Managed Switch
409366-B21	Voltaire InfiniBand 4X DDR 24-Port Externally Managed Switch
376166-B22	Voltaire InfiniBand 4X SDR 24-Port Internally Managed Switch
376165-B22	Voltaire InfiniBand 4X SDR 24-Port Externally Managed Switch
394080-B21	InfiniBand 96-Port Chassis
376170-B21	InfiniBand 288-Port Chassis

HP Part Number	Software Descriptions
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UFM 2.x and Newer

590643-B21	Voltaire Unified Fabric Manager Per Node RTU
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BladeFM

450717-B21	GridVision BladeFM Software License for HP BladeSystem c-Class
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Voltaire Per Node Software License

450716-B21	Per Node SW License
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Overview

This document describes the Voltaire InfiniBand interconnects and the related Cluster Platform documentation. You can link directly to any of the documentation here to assist you in maintaining your Cluster Platform configuration.

NOTE: Before you begin any system operations, go to the following website and download the latest documentation updates from the High Performance Computing website:

<http://www.docs.hp.com/en/highperfcomp.html>

If your hardware configuration contains HP BladeSystems and enclosures, important updates are available from this site.

Voltaire InfiniBand Interconnect Documentation

The Voltaire InfiniBand interconnects are modular systems that you can use to create large, single-system grid/cluster fabrics, or you can use them as building blocks for larger fabrics. These interconnects are designed to maximize performance, streamline operations, and to ensure uptime by providing full hardware and software reliability, availability, and serviceability (RAS) features.

It is assumed that you are familiar with the Voltaire InfiniBand interconnects and have the knowledge necessary to maintain and troubleshoot the Voltaire technology that is used in an HP Cluster Platform configuration.

The Voltaire InfiniBand interconnects and cables were installed by an HP service representative. The Cluster Platform and Voltaire documentation is provided for your reference and contains information necessary for you to perform certain maintenance and troubleshooting procedures. All of the documentation referenced in this document is currently available on the docs.hp.com and [Voltaire](#) websites. If you have any comments about the HP document, please send them to:

<http://docs.hp.com/en/feedback.html>

For technical support and updates, contact your HP representative rather than using the Voltaire Technical Assistance Center (TAC) referenced in the Voltaire documentation.

Revision History

Revision Date	Changes
December 2009	Added links for: <ul style="list-style-type: none">• Voltaire 4700 switch documentation• Unified Fabric Manager (UFM)
March 2009	Added links for: <ul style="list-style-type: none">• Voltaire 4036 switch documentation• <i>Voltaire GridVision Integrated For Grid Directors User Documentation, Grid Director Software Version 5.4, ISR 9024 Grid Director Software Version: GridVision 5.1.1</i>• OFED 1.4 documentation• Host-based Subnet Manager Version 1.5 documentation• WinOF Version 2.0 documentation

August 2008	<p>Added links for:</p> <ul style="list-style-type: none"> • OFED 5.x release notes • <i>Linux GridStack User Manual Release 4.3</i> • <i>GridVision Integrated for Grid Directors User Documentation, Software Release GridVision 5.2</i> • <i>Voltaire Grid Director ISR 2012 and ISR 2004 Installation Manual</i> • <i>Voltaire GridVision ISR 9288/ISR 9096/ISR2012/ISR 2004 Grid Directors Version 5.2 Release Notes</i> • <i>Voltaire Grid Director ISR 2012 and ISR 2004 Installation Manual</i> • <i>Getting Started Short Guide — Voltaire Solution for the ISR 9XXX, ISR 2012</i> • <i>Voltaire InfiniBand-to-10 GbE Gateway (sRB-2021G Module User Manual, Software Release 1.0.0</i> • <i>Release Notes for the Voltaire GridVision Grid Switch ISR 9024, Software Release 5.1.0</i> • <i>Voltaire GridVision Integrated for Grid Directors User Documentation, Grid Switch Software Release GridVision 5.1</i>
May 2008	Added ISR 2004 documentation and OFED 5.x documentation.
April 2008	Added revised <i>GridVision BladeFM Getting Started Guide Software Release 4.2.0</i> (March 2008), which replaces the 2007 version
March 2008	<p>Added:</p> <ul style="list-style-type: none"> • <i>Voltaire InfiniBand GridStack Release Notes Revision 4.3.5.c_8</i> • <i>OpenMPI Release Notes Version 1.2.5 Revision VLTO</i> • <i>Grid Director ISR 2012 and ISR 2004 Installation Manual Release 5.0</i> and removed the Release 4.1 version • <i>Release Notes for the Grid Director ISR 9288/ISR9092/ISR2012/ISR 2004 GridVision Revision 5.0.0</i> • <i>Voltaire GridVision Integrated User Manual, Software Release 5.0</i> • <i>Voltaire GridVision Integrated Grid Directors ISR 2012/ISR2004 and ISR 9288/9096 User Documentation Suite, Software Release 5.0</i>, which replaces the Release 4.1 version • Release notes for GridVision version 5.0
January 2008	First edition

Voltaire QDR InfiniBand Hardware and Software

Voltaire ISR 4036 Documentation

The Voltaire ISR 4036 documentation describes how to install and maintain the ISR 4036 product. Go to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the ISR 4036 components.

For Voltaire documentation updates, go to the Voltaire Product Documentation website:

http://www.voltaire.com/SupportAndServices/Product_Documentation

Title/Publication Date/Contents
<p><i>Grid Director 4036 (QDR) /2036 (DDR) Installation Manual</i> (April 2009)</p> <p>Topics covered include:</p> <ul style="list-style-type: none">• Introduction• Unpacking• Getting started• Product options• Technical specifications and certifications• Hardware installation• Cabling• Operation• Powering on the 4036/2036• Switch management• Troubleshooting• Cable and port pinout• QSFP cable

[Voltaire 4036/2036 Grid Director User Manual](#) (April 2009)

Topics covered include:

- Introduction
- CLI Overview
- Initial System Setup (CLI)
- Built-in-Test
- Updating, Backing up, and Upgrading the Software
- Handover Mechanism and Redundancy/High Availability
- 4036/2036 Device Manager
- Remote Configuration Settings
- Security Settings
- Unified Fabric Manager Support
- Factory Defaults
- QSFP Port Management
- Configuring the Subnet Manager
- Configuring Routing Algorithms
- Utilities
- Getting Started with the CLI and Top Level Structure
- Guest Mode
- Admin Mode
- Configuration (config) Mode

Voltaire Grid Director 4700 Documentation

The [Voltaire Grid Director 4700](#) documentation describes how to install and maintain the Grid Director 4700 product. Go to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the Grid Director 4700 components.

For Voltaire documentation updates, go to the Voltaire Product Documentation website:

http://www.voltaire.com/SupportAndServices/Product_Documentation

Title/Publication Date/Contents
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<p><u>Voltaire Grid Director 4700 Installation Manual</u> (August 2009)</p>

<p>Topics covered include:</p>

- | |
|--|
| <ul style="list-style-type: none">• Introduction• System Configurations• 4700 Specifications• Packing and Unpacking• Preparing for Installation• Rack-Mounting the 4700 Chassis• Installing System Boards• Verifying Installation• System Cabling• Troubleshooting• Definitions and Acronyms |
|--|

[Voltaire Grid Director 4700 User Manual](#) (August 2009)

Topics covered include:

- Introduction
- CLI Overview
- Initial System Setup (CLI)
- Built-in-Test
- Updating, Backing up, and Upgrading the Software
- Handover Mechanism and Redundancy/High Availability
- 4700 Device Manager
- Remote Configuration Settings
- Security Settings
- Getting Started with the CLI and Top Level Structure
- Guest Mode
- Admin Mode
- Configuration (config) Mode

Unified Fabric Manager Information

Voltaire's Unified Fabric Manager (UFM) allows data center operators to efficiently monitor and operate the entire fabric, increase application performance and maximize fabric resource utilization.

When you purchase UFM from HP, you will receive instructions explaining how to download the UFM software and obtain a License Key to activate it.

The following links are provided for your reference.

Description	Link
<ul style="list-style-type: none">• Unified Fabric Manager Software for Data Center Management• Voltaire Unified Fabric Manager Software - Data Sheet, 2009• Features & Benefits	Voltaire UFM

Voltaire DDR InfiniBand Hardware and Software

Voltaire ISR 2004 Documentation

The Voltaire ISR 2004 documentation describes how to install and maintain the ISR 2004 product. Go to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the ISR 2004 components.

Title/Publication Date/Contents
<u>Voltaire GridVision ISR 9288/ISR 9096/ISR 2012/ISR 2004 Grid Directors Version 5.2 Release Notes</u> (June 2008) Release notes for the Voltaire GridVision ISR 9288/ISR 9096/ISR 2012/ISR 2004 Grid Directors, Release 5.2.
<u>Release Notes for the Grid Director ISR 9288/ISR 9096/ISR 2012/ISR 2004 Voltaire GridVision Software Revision 5.0.0</u> (March 2008) Release notes for the ISR 9288/ISR 9096/ISR 2012/ISR 2004 GridVision, Release 5.0.0.
<u>Voltaire InfiniBand-to-10 GbE Gateway (sRB-20210G Module) User Manual, Software Release 1.0.0</u> (June 2008) Topics covered include: <ul style="list-style-type: none">• First-time configuration• The sRB-20210G GUI Device Manager• Device information• Device configuration• Advanced features and configuration tasks• Networks• Traffic flow management• Static route• Logs and statistics• Multicast settings• Accessing the sRB-20210G via the switch GUI VFM• Partitioning• sRB-20210G CLI interface reference• Safe mode

Title/Publication Date/Contents

[*Voltaire GridVision Integrated For Grid Directors User Documentation, Grid Director Software Version: GridVision 5.4, ISR 9024 Grid Director Software Version: GridVision 5.1.1*](#)

(March 2009)

Topics covered include:

- CLI basics
- Initial system setup
- Built-in test
- Installing the GridVision Integrated Manager
- Logging into the GridVision Integrated Device/Fabric Manager
- Updating, backing up, and upgrading the software
- Installing cables
- Security settings
- Safe mode
- Failover/Handover mechanism and redundancy
- Management Information Base (MIB) overview
- GridVision Graphic Device Manager
- Grid Director device and module information
- Setting the GridVision VDM for switch management
- Configuring I/O
- VDM reset operations and security
- Replacing modules
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Bad ports
- Health monitoring
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions
- CLI reference guide
- Port Counter fields
- Supported traps and events

Title/Publication Date/Contents

[Voltaire GridVision Integrated for Grid Directors User Documentation, Software Release GridVision 5.2](#) (June 2008)

Topics covered include:

- CLI overview
- Initial system setup
- Built-in test
- Installing the GridVision Integrated Manager
- Logging into the GridVision Integrated Device/Fabric Manager
- Updating, backing up, and upgrading the software
- Installing cables
- Security settings
- Safe mode
- Failover/Handover mechanism and redundancy
- Management Information Base (MIB) overview
- GridVision Graphic Device Manager
- Grid Director device and module information
- Setting the GridVision VDM for switch management
- Configuring I/O
- VDM reset operations and security
- Replacing modules
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Bad ports
- Health monitoring
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions
- CLI reference guide
- Port Counter fields
- Supported traps and events
- BIT I/O error lines

Title/Publication Date/Contents

[Voltaire GridVision Integrated Grid Directors ISR 2012/ISR 2004 & ISR 9288/9096 User Documentation, Software Release GridVision 5.0](#) (March 2008)

Topics covered include:

- CLI overview
- Initial system setup
- Installing the GridVision Integrated Manager
- Updating, backing up, and upgrading the software
- Safe mode
- Failover/Handover mechanism and redundancy
- GridVision Graphic Device Manager
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Configuring FTP
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions

[Voltaire Grid Director ISR 2012 and ISR 2004 Installation Manual](#) (June 2008)

Topics covered include:

- Product overview
- System configurations
- ISR 2004/2012 specifications
- Packing and unpacking
- Hardware installation
- Installing system boards
- Verifying installation
- System cabling
- Troubleshooting

Voltaire ISR 2012 Documentation

The Voltaire ISR 2012 documentation describes how to install and maintain the ISR 2012 product. Go to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the ISR 2012 components.

Title/Publication Date/Contents
<u>Hardware Release Notes for the ISR 2012</u> (May 2007) Hardware release notes for the ISR 2012.
<u>Voltaire GridVision ISR 9288/ISR 9096/ISR 2012/ISR 2004 Grid Directors Version 5.2 Release Notes</u> (June 2008) Release notes for the Voltaire GridVision ISR 9288/ISR 9096/ISR 2012/ISR 2004 Grid Directors, Release 5.2.
<u>Release Notes for the Grid Director ISR 9288/ISR 9096/ISR 2012/ISR 2004 Voltaire GridVision Software Revision 5.0.0</u> (February 2008) Release notes for the ISR 9288/ISR 9096/ISR 2012/ISR 2004 GridVision, Release 5.0.0.
<u>Release Notes for the Grid Director ISR 9288/ISR 9096/ISR 2012 GridVision Revision 4.1.0-Build 7 2 3</u> (June 2007) Release notes for the Grid Director, Revision 4.1.0.
<u>Voltaire Grid Director ISR 2012 and ISR 2004 Installation Manual</u> (June 2008) Topics covered include: <ul style="list-style-type: none">• Product overview• System configurations• ISR 2004/2012 specifications• Packing and unpacking• Hardware installation• Installing system boards• Verifying installation• System cabling• Troubleshooting
<u>CLI Reference Guide for the Grid Directors ISR 2012, ISR 9096, and ISR 9288</u> (June 2007) Topics covered include: <ul style="list-style-type: none">• CLI overview• Initial system setup• CLI top-level structure• Exec (Admin) mode• Privileged mode• Configuration (config) mode

Title/Publication Date/Contents

[Voltaire InfiniBand-to-10 GbE Gateway \(sRB-20210G Module\) User Manual, Software Release 1.0.0](#) (June 2008)

Topics covered include:

- First-time configuration
- The sRB-20210G GUI Device Manager
- Device information
- Device configuration
- Advanced features and configuration tasks
- Networks
- Traffic flow management
- Static route
- Logs and statistics
- Multicast settings
- Accessing the sRB-20210G via the switch GUI VFM
- Partitioning
- sRB-20210G CLI interface reference
- Safe mode

[Getting Started Short Guide - Voltaire Solution for the ISR 9XXX, ISR 2012](#) (2008)

Topics covered include:

- ISR 9024S/D installation
- ISR 2012 and FRU installation
- ISR 9288 and FRU installation
- ISR 9096 and FRU installation
- HCA 4X0 installation
- HCA 4X0 Windows installation
- Setting up Voltaire devices for management
- Cable and port pinout

Title/Publication Date/Contents

[*Voltaire GridVision Integrated For Grid Directors User Documentation, Grid Director Software Version: GridVision 5.4, ISR 9024 Grid Director Software Version: GridVision 5.1.1*](#)

(March 2009)

Topics covered include:

- CLI basics
- Initial system setup
- Built-in test
- Installing the GridVision Integrated Manager
- Logging into the GridVision Integrated Device/Fabric Manager
- Updating, backing up, and upgrading the software
- Installing cables
- Security settings
- Safe mode
- Failover/Handover mechanism and redundancy
- Management Information Base (MIB) overview
- GridVision Graphic Device Manager
- Grid Director device and module information
- Setting the GridVision VDM for switch management
- Configuring I/O
- VDM reset operations and security
- Replacing modules
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Bad ports
- Health monitoring
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions
- CLI reference guide
- Port Counter fields
- Supported traps and events

Title/Publication Date/Contents

[Voltaire GridVision Integrated for Grid Directors User Documentation, Software Release GridVision 5.2](#) (June 2008)

Topics covered include:

- CLI overview
- Initial system setup
- Built-in test
- Installing the GridVision Integrated Manager
- Logging into the GridVision Integrated Device/Fabric Manager
- Updating, backing up, and upgrading the software
- Installing cables
- Security settings
- Safe mode
- Failover/Handover mechanism and redundancy
- Management Information Base (MIB) overview
- GridVision Graphic Device Manager
- Grid Director device and module information
- Setting the GridVision VDM for switch management
- Configuring I/O
- VDM reset operations and security
- Replacing modules
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Bad ports
- Health monitoring
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions
- CLI reference guide
- Port Counter fields
- Supported traps and events
- BIT I/O error lines
- Events to alarms

Title/Publication Date/Contents

[*Voltaire GridVision Integrated User Manual, Software Release GridVision 5.0*](#) (February 2008)

Topics covered include:

- CLI overview
- Initial system setup
- Installing the GridVision Integrated Manager
- Updating, backing up, and upgrading the software
- Safe mode
- Failover/Handover mechanism and redundancy
- GridVision Graphic Device Manager
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Configuring FTP
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions

Title/Publication Date/Contents

[*Voltaire GridVision Integrated User Manual, Software Release 4.1*](#) (May 2007)

Topics covered include:

- CLI overview
- Initial system setup
- Installing the GridVision Integrated Manager
- Updating, backing up, and upgrading the software
- Safe mode
- Failover/Handover mechanism and redundancy
- GridVision Graphic Device Manager
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Configuring FTP
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions

GridVision BladeFM Documentation

The GridVision BladeFM documentation describes how to install and maintain the GridVision BladeFM product.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the GridVision BladeFM components.

Title/Publication Date/Contents
<p>GridVision BladeFM Release Notes for Revision 4.2.0 (July 2007) Release notes for GridVision BladeFM, Revision 4.2.0.</p>
<p>GridVision BladeFM (HP) Release Notes for Revision 3.4.8 (November 2006) Release notes for GridVision BladeFM, Revision 3.4.8.</p>
<p>GridVision BladeFM Getting Started Guide Software Release 4.2.0 (March 2008) Topics covered include:</p> <ul style="list-style-type: none">• GridVision BladeFM overview• Installing, upgrading, and removing the GridVision BladeFM software• Cross-references to other Voltaire documentation• GridVision BladeFM command-line interface
<p>GridVision BladeFM Getting Started Guide (November 2006) Topics covered include:</p> <ul style="list-style-type: none">• GridVision BladeFM overview• Installing, upgrading, and removing the GridVision BladeFM software• Switch user manual matrix• GridVision BladeFM command-line interface
<p>Voltaire Host-based Subnet Manager Release Notes, Software Version 1.5 (December 2008) Release notes for Host-based Subnet Manager Version 1.5.</p>
<p>Voltaire Host-based Subnet Manager User Manual, Software Version 1.5 (December 2008) Topics covered include:</p> <ul style="list-style-type: none">• Installing the Host-based Subnet Manager• Configuring the Host-based Subnet Manager• Performance Manager• Diagnostic utilities• Host-based Subnet Manager software default files• Default Subnet Manager configuration file

Voltaire SDR InfiniBand Hardware and Software

Voltaire ISR 9096-9288 Documentation

The Voltaire ISR 9096-9288 documentation describes how to install and maintain the ISR 9096-9288 products. Go to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the ISR 9096-9288 components.

For Voltaire documentation updates, go to the Voltaire Product Documentation website:

http://www.voltaire.com/SupportAndServices/Product_Documentation

Title/Publication Date/Contents
Voltaire GridVision ISR 9288/ISR 9096/ISR 2012/ISR 2004 Grid Directors Version 5.2 Release Notes (June 2008) Release notes for the Voltaire GridVision ISR 9288/ISR 9096/ISR 2012/ISR 2004 Grid Directors, Release 5.2.
Release Notes for the Grid Director ISR 9288/ISR 9096/ISR 2012/ISR 2004 Voltaire GridVision Software Revision 5.0.0 (March 2008) Release notes for the ISR 9288/ISR 9096/ISR 2012/ISR 2004 GridVision, Release 5.0.0.
Release Notes for the Grid Director ISR 9288/ISR 9096/ISR 2012 GridVision Revision 4.1.0 (October 2007) Release notes for the Grid Director, Revision 4.1.0 build 7.2.3.
Release Notes for ISR 9288 and ISR 9096 Voltaire GridVision Revision 4.0.0 (February 2007) Release notes for GridVision used on the ISR 9288 and ISR 9096 switches, Revision 4.0.0.
Release Notes for the ISR 9288 and ISR 9096 Voltaire GridVision Revision 3.4.3 (October 2006) Release notes for GridVision Revision 3.4.3 used on the ISR 9288 and ISR 9096 switches.
Release Notes for ISR 9288 and ISR 9096 Voltaire Switch Software Revision 3.4.2 (March 2006) Release notes for the Voltaire switch software Revision 3.4.2 used on the ISR 9288 and ISR 9096 switches.
Release Notes for the ISR 9288 and ISR 9096 DDRx (January 2007) Provides the release notes for the ISR 9288 and ISR 9096 DDRx components.
Getting Started Short Guide - Voltaire Solution for the ISR 9XXX, ISR 2012 (2008) Topics covered include: <ul style="list-style-type: none">• ISR 9024S/D installation• ISR 2012 and FRU installation• ISR 9288 and FRU installation• ISR 9096 and FRU installation• HCA 4X0 installation• HCA 4X0 Windows installation• Setting up Voltaire devices for management• Cable and port pinout

Title/Publication Date/Contents

[Voltaire Switch User Manual for Grid Directors ISR 9096 and ISR 9288 and Grid Switch ISR 9024](#) (March 2007)

Topics covered include:

- InfiniBand, ISR 9024, ISR 9288/9096, and Voltaire switch management overview
- CLI overview
- Initial system setup
- Installing the GridVision Integrated Manager
- Updating, backing up, and upgrading the software
- GridVision Graphic Device Manager
- GridVision Integrated Graphic Fabric Manager
- Detailed description of Fabric Manager
- Node name settings
- Configuring the fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Configuring FTP
- Large-scale operations
- Fabric diagnostic overview
- Configuring the fabric – Performance Manager
- Setting traps, events, and alarms
- Logs
- Absent/Disconnected elements
- Additional tools and examples
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics suggestions
- CLI commands reference
- Port counters fields
- Supported traps and events

Title/Publication Date/Contents
<p><u>Voltaire Switch User Manual for ISR 9024, ISR 9096, and ISR 9288 Switches</u> (May 2006)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • Overview of the InfiniBand technology and the ISR 9024, ISR 9096, and ISR 9288 switches • CLI overview • Initial system setup • `Basic CLI maintenance commands • Voltaire Device Manager (VDM) • Voltaire Fabric Manager (VFM) • Names settings • Rack grouping • Configuring quality of service (QoS) • Configuring routing algorithms • Configuring partitioning • Replacing modules • Configuring Cluster Monitor • Fabric diagnostic • CLI commands reference • Port counters • Supported traps and events
<p><u>Voltaire ISR 9288/ISR 9096 Installation Manual, Rev B</u> (January 2007)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • Product overview • System configurations • ISR 9XXX specifications • Packing and unpacking • Hardware installation • Installing system boards • Verifying installation • System cabling • Troubleshooting
<p><u>InfiniBand Copper Cabling Guide</u> (2004)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • InfiniBand copper cabling guidelines • InfiniBand port specifications • Guidelines for ISR 9288 cabling
<p><u>CLI Reference Guide for the Grid Directors ISR 2012, ISR 9096, and ISR 9288</u> (June 2007)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • CLI overview • Initial system setup • CLI top-level structure • Exec (Admin) mode • Privileged mode • Configuration (config) mode

Title/Publication Date/Contents

[Voltaire GridVision Integrated for Grid Directors User Documentation, Software Release](#)

[GridVision 5.2](#) (June 2008)

Topics covered include:

- CLI overview
- Initial system setup
- Built-in test
- Installing the GridVision Integrated Manager
- Logging into the GridVision Integrated Device/Fabric Manager
- Updating, backing up, and upgrading the software
- Installing cables
- Security settings
- Safe mode
- Failover/Handover mechanism and redundancy
- Management Information Base (MIB) overview
- GridVision Graphic Device Manager
- Grid Director device and module information
- Setting the GridVision VDM for switch management
- Configuring I/O
- VDM reset operations and security
- Replacing modules
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Bad ports
- Health monitoring
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions
- CLI reference guide
- Port Counter fields
- Supported traps and events
- BIT I/O error lines

Events to alarms

Title/Publication Date/Contents

[Voltaire GridVision Integrated Grid Directors ISR 2012/ISR2004 and ISR 9288/9096 User Documentation Suite, Software Release 5.0](#) (February 2008)

Topics covered include:

- CLI overview
- Initial system setup
- Installing the GridVision Integrated Manager
- Updating, backing Up, and upgrading the software
- Safe mode
- Failover/Handover mechanism and redundancy
- GridVision Graphic Device Manager
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Configuring FTP
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions

Voltaire ISR 9024 Documentation

The Voltaire ISR 9024 documentation describes how to install and maintain the ISR 9024 products. Go to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the ISR 9024 components. Chapters and appendices that contain maintenance and troubleshooting procedures are indicated in **bold text**. Check the Voltaire Product Documentation website for the latest information:

http://www.voltaire.com/SupportAndServices/Product_Documentation/

Title/Publication Date/Contents
Release Notes for the Voltaire GridVision Grid Switch ISR 9024, Software Revision 5.1.1 (December 2008) Release notes for the Voltaire GridVision Grid Switch for the ISR 9024, Revision 5.1.1.
Release Notes for the Voltaire GridVision Grid Switch ISR 9024, Software Revision 5.1.0 (June 2008) Release notes for the Voltaire GridVision Grid Switch for the ISR 9024, Revision 5.1.0.
ISR 9024 Software Release Notes Rev 3.4.5 (October 2007) Release notes for the ISR 9024 switch, Revision 3.4.5.
Release Notes for the ISR 9024 Voltaire Switch Software Revision 3.4.1 (October 2005) Release notes for the ISR 9024 switch, Revision 3.4.1.
Getting Started Short Guide - Voltaire Solution for the ISR 9xxx (2008) Topics covered include: <ul style="list-style-type: none">• ISR 9024S/D installation• HCA 4X0 installation• HCA 4X0 Windows installation• Setting up Voltaire devices for management• Cable and port pinout
ISR 9024S/D Installation Manual (March 2008) Topics covered include: <ul style="list-style-type: none">• Product overview• ISR 9024 configurations and specifications• Management overview• Packing and unpacking• Hardware installation• Cabling• ISR 9024S/ISR 9024D operation• Troubleshooting• Cable and port pinout• Optical adapter
InfiniBand Copper Cabling Guide (2004) Topics covered include: <ul style="list-style-type: none">• InfiniBand copper cabling guidelines• InfiniBand port specifications• Guidelines for ISR 9288 cabling

Title/Publication Date/Contents

[Voltaire GridVision Integrated For Grid Directors User Documentation, Grid Director Software Version: GridVision 5.4, ISR 9024 Grid Director Software Version: GridVision 5.1.1](#)
(March 2009)

Topics covered include:

- CLI basics
- Initial system setup
- Built-in test
- Installing the GridVision Integrated Manager
- Logging into the GridVision Integrated Device/Fabric Manager
- Updating, backing up, and upgrading the software
- Installing cables
- Security settings
- Safe mode
- Failover/Handover mechanism and redundancy
- Management Information Base (MIB) overview
- GridVision Graphic Device Manager
- Grid Director device and module information
- Setting the GridVision VDM for switch management
- Configuring I/O
- VDM reset operations and security
- Replacing modules
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Bad ports
- Health monitoring
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions
- CLI reference guide
- Port Counter fields
- Supported traps and events

Title/Publication Date/Contents

[Voltaire GridVision Integrated for Grid Directors User Documentation, Software Release GridVision 5.2, ISR 9024 Grid Switch Software Release: GridVision 5.1](#) (June 2008)

Topics covered include:

- CLI overview
- Initial system setup
- Built-in test
- Installing the GridVision Integrated Manager
- Logging into the GridVision Integrated Device/Fabric Manager
- Updating, backing up, and upgrading the software
- Installing cables
- Security settings
- Safe mode
- Failover/Handover mechanism and redundancy
- Management Information Base (MIB) overview
- GridVision Graphic Device Manager
- Grid Director device and module information
- Setting the GridVision VDM for switch management
- Configuring I/O
- VDM reset operations and security
- Replacing modules
- GridVision Integrated Fabric Manager overview
- Fabric Manager- detailed description
- Node name settings
- Configuring the Fabric – Subnet Manager
- Bad ports configuration mode
- Configuring routing algorithms
- Partitioning and networks
- Configuring quality of service (QoS)
- Configuring nodes
- Rack grouping
- Large-scale operations
- Remote connections
- Fabric diagnostic overview
- Configuring the fabric –Performance Monitor
- Setting traps, events, and alarms
- Bad ports
- Health monitoring
- Logs
- Absent/Disconnected elements
- Diagnostic utilities
- Configuring the Cluster Monitor
- Fabric diagnostics and suggestions
- CLI reference guide
- Port Counter fields
- Supported traps and events
- BIT I/O error lines
- Events to alarms

Title/Publication Date/Contents
<p><i>Voltaire SNMP MIB Reference Guide, MIB Version 210528000Z</i> (November 2008)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • Overview of the Management Information Base • Working in the SNMPc environment • Common management tasks (using FTP server access parameters, software updates, managing configurations) • Detailed MIB tables
<p><i>Voltaire Switch User Manual for ISR 9024, ISR 9096, and ISR 9288 Switches</i> (May 2006)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • Overview of the InfiniBand technology and the ISR 9024, ISR 9096, and ISR 9288 switches • CLI overview • Initial system setup • Basic CLI maintenance commands • Voltaire Device Manager (VDM) • Voltaire Fabric Manager (VFM) • Names settings • Rack grouping • Configuring quality of service (QoS) • Configuring routing algorithms • Configuring partitioning • Replacing modules • Configuring Cluster Monitor • Fabric diagnostic • CLI commands reference • Port counters • Supported traps and events

Voltaire OFED 1.4 Documentation

This Voltaire OFED documentation describes how to install and maintain the Voltaire OFED 1.4 product.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures for the Voltaire InfiniBand Interconnect.

Title/Publication Date/Contents
<u>Voltaire OFED Software Version 1.4_10 Release Notes</u> (January 2009) Release notes for Voltaire OFED Version 1.4_10.
<u>Voltaire OFED 1.4 User Manual</u> (December 2008) Topics covered include: <ul style="list-style-type: none">• Installation and setup• Configuration• Diagnostics and troubleshooting• Port counters list and description• OFED documentation and header files• OFED configuration file

Voltaire OFED Linux 5.x Documentation

This Voltaire OFED Linux documentation describes how to install and maintain the Voltaire OFED Linux 5.x products.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures for the Voltaire InfiniBand Interconnect.

Title/Publication Date/Contents
<i>Voltaire OFED Release Notes, Software Revision 5.1.3.1_5</i> (July 2008) Release notes for Voltaire OFED Software Revision 5.1.3_5.
<i>Voltaire OFED Release Notes, Software Revision 5.1.3_9</i> (March 2008) Release notes for Voltaire OFED Software Revision 5.1.3_9.
<i>Voltaire OFED for HCA 4X0/5X0 User Manual, Software Release 5.1.3.1</i> (June 2008) Topics covered include: <ul style="list-style-type: none">• Installing the Voltaire OFED• Configuring the Voltaire OFED• Protocol configuration and usage of Voltaire OFED products• IPoB bonding• Diagnostics• Port counters list and description• OFED documentation and header files• OFED configuration file

GridStack 4.x Drivers for Red Hat Documentation

This GridStack documentation describes how to install and maintain the GridStack 4.x drivers on interconnects using Red Hat Linux.

The Voltaire InfiniBand interconnects and cables were installed by an HP service representative. Go only to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures for the Voltaire InfiniBand Interconnect.

Title/Publication Date/Contents
<u>Voltaire Host Stack for Linux End-User Software License Agreement</u> End-user software license agreement for the Voltaire Host Stack.
<u>Getting Started Short Guide - Voltaire Solution for the ISR 9XXX, ISR 2012</u> (2007) Topics covered include: <ul style="list-style-type: none">• ISR 9024S/D installation• ISR 2012 and FRU installation• ISR 9288 and FRU installation• ISR 9096 and FRU installation• HCA 4X0 installation• Setting up Voltaire devices for management• Cable and port pinout
<u>Voltaire InfiniBand GridStack Release Notes Revision 4.3.5.c 8</u> (2008) Release notes for the Voltaire InfiniBand GridStack, Revision 4.3.5.c build 8.
<u>OpenMPI Release Notes Version 1.2.5 Revision VLT00</u> (February 2008) Release notes for OpenMPI version 1.2.5, Revision VLT00.
<u>Voltaire InfiniBand GridStack Release Notes Revision 4.3.5.c 6</u> (September 2007) Release notes for the Voltaire InfiniBand GridStack, Revision 4.3.5.c build 6.
<u>Voltaire InfiniBand GridStack Release Notes Software Revision 4.3.0</u> (August 2007) Release notes for the Voltaire InfiniBand Stack, Revision 4.3.0.
<u>Voltaire InfiniBand Linux GridStack Release Notes Revision 4.1.5 9</u> (August 2007) Release notes for the Voltaire InfiniBand Linux GridStack, Revision 4.1.5 build 9.
<u>Voltaire InfiniBand Linux GridStack Release Notes Revision 4.1.5 6</u> (April 2007) Release notes for the Voltaire InfiniBand Stack, Revision 4.1.5 build 6.

Title/Publication Date/Contents
<p><u>Linux GridStack User Manual: Software Release 4.3</u> (July 2008)</p> <p>Topics covered include:</p> <ul style="list-style-type: none">• Installing the Voltaire GridStack• Configuring the GridStack• Protocol configuration and usage of GridStack protocols• Diagnostics• GridVision daemon• Host identification service• IPoB bonding• Port counters list and description• OFED documentation and header files
<p><u>HCA 4X0 User Manual for Linux GridStack Release 4.1 or Higher</u> (September 2006)</p> <p>Topics covered include:</p> <ul style="list-style-type: none">• Installing the Voltaire GridStack• Configuring the GridStack• Protocol configuration and usage of IPOIB, SDP, RDS, MPI, and uDAPL• Diagnostics• GridVision daemon• Voltaire MPI memory consumption and configuration• Port counters list and description• Installing the Linux kernel sources from the source RPM
<p><u>Voltaire User Manual for Open MPI Version 1.2</u> (July 2007)</p> <p>Topics covered include:</p> <ul style="list-style-type: none">• Software architecture• Open MPI setup• Compiling and running MPI jobs using Open MPI• Debugging and troubleshooting• Feature comparison (Open MPI versus Voltaire MPI)• <code>mprirun</code> options• Open MPI MCA parameters

GridStack 3.x (IBHOST) Drivers for Red Hat Documentation

This GridStack documentation describes how to install and maintain the GridStack 3.x drivers on interconnects using Red Hat Linux.

The Voltaire InfiniBand interconnects and cables were installed by an HP service representative. Go only to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures for the Voltaire InfiniBand Interconnect.

Title/Publication Date/Contents
<u>Voltaire Host Stack for Linux End-User Software License Agreement</u> End-user software license agreement for Voltaire Host Stack.
<u>Linux InfiniBand Stack for the Voltaire HCA 4X0 Release Notes Revision 3.5</u> (March 2005) Release notes for the Linux InfiniBand Stack for the Voltaire HCA 4X0 Revision 3.5.
<u>Linux InfiniBand Stack for Voltaire HCA-400 Release Notes Revision 3.0.0</u> (February 2005) Release notes for the Linux InfiniBand Stack for Voltaire HCA 400 Revision 3.0.0.
<u>Voltaire HCA 400 InfiniBand Stack for Linux Release Notes Revision 2.1</u> (November 2004) Release notes for the Voltaire HCA 400 InfiniBand Stack for Linux Revision 2.1.
<u>Getting Started Short Guide - Voltaire Solution for the ISR 9XXX, ISR 2012</u> (2007) Topics covered include: <ul style="list-style-type: none">• ISR 9024S/D installation• ISR 2012 and FRU installation• ISR 9288 and FRU installation• ISR 9096 and FRU installation• HCA 4X0 installation• HCA 4X0 Windows installation• Setting up Voltaire devices for management• Cable and port pinout
<u>Getting Started Short Guide - Voltaire HCA 4X0</u> (2005) Briefly describes the HCA 4X0 and host stack installation steps with references to documents with more information.

Title/Publication Date/Contents
<p><u>Getting Started Guide – Voltaire Solution</u> (2004)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • ISR 9024 installation • ISR 9288 and FRU installation • HCA 400 installation • Setting up Voltaire devices for management • Cable and port pinout
<p><u>Voltaire HCA 4X0 User Manual</u> (December 2005)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • Installing the Voltaire InfiniBand protocol host stack • Configuring the host stack • Protocol configuration and usage for SDP, MPI, and u/kDAPL • Diagnostics • Uninstalling the host stack • Voltaire MPI memory consumption and configuration
<p><u>InfiniBand Copper Cabling Guide</u> (2004)</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • InfiniBand copper cabling guidelines • InfiniBand port specifications • Guidelines for ISR 9288 cabling

Windows GridStack Documentation

The Windows GridStack documentation describes how to install and maintain the Windows GridStack product. Go to the HP website for updates, technical assistance, and support.

The following documents are provided for your reference and contain information necessary for you to perform certain maintenance and troubleshooting procedures on the Windows GridStack components.

Title/Publication Date/Contents
Voltaire WinOF 2.0 Release Notes (December 2008) Release notes for Voltaire WinOF 2.0.
Voltaire HCA-4X0 with Windows GridStack Release Notes Revision 2.5 (July 2007) Release notes for Windows GridStack, Revision 2.5.
Voltaire HCA-4X0 with Windows GridStack Release Notes Revision 2.2 (October 2006) Release notes for Windows GridStack, Revision 2.2.
Voltaire Windows GridStack for HCA 4X0 User Manual (October 2007) Topics covered include: <ul style="list-style-type: none">• Installing the Voltaire InfiniBand GridStack• Configuring the GridStack• Protocol configuration and usage• Uninstalling the GridStack• Diagnostics• Troubleshooting
Getting Started Short Guide - Voltaire Solution for the ISR 9XXX, ISR 2012 (2007) Topics covered include: <ul style="list-style-type: none">• ISR 9024S/D installation• ISR 2012 and FRU installation• ISR 9288 and FRU installation• ISR 9096 and FRU installation• HCA 4X0 installation• HCA 4X0 Windows installation• Setting up Voltaire devices for management• Cable and port pinout
Voltaire WinOF Version 2.0 User Manual (2007) Topics covered include: <ul style="list-style-type: none">• Installation and setup• Configuration• Diagnostics and troubleshooting• Using MPI (Message Passing Interface)• Creating a WinPE Disk Image

Cable Management

The following document describes the cable management and installation procedures for the Voltaire InfiniBand interconnects:

- [24 Node Cable Management Bracket Installation Guide](#)

Related Documentation

The following documentation or websites may be of use in managing your Cluster Platform environment and Voltaire interconnects:

Title/Publication Date/Contents
Voltaire Host Stack for Linux End-User Software License Agreement End-user software license agreement for Voltaire Host Stack.
Voltaire Supported Firmware Matrix (May 2008) HP document describing the minimum firmware versions required for correct operation of the Voltaire interconnects that are used with HP Cluster Platform components.
Cluster Platform Overview HP manual providing an overview of HP Cluster Platform environments, as well as the HP Storage Works Scalable File Share (SFS) and the HP Scalable Visual Array (SVA).
Site Preparation Guide HP manual providing an overview of the HP Cluster Platform hardware and describes how to plan for the receipt and installation of cluster hardware in a dedicated computer facility.
High Performance Computing website HP website providing the latest documentation for High Performance Computing hardware and software products (Cluster Platform products, cabling tables, interconnect and firmware information, cable management guides, and SVA).
Voltaire website See the Voltaire website for information that may not be found in the Voltaire documentation provided here.

For more information

For the latest information regarding the HP Cluster Platform products, go to:

<http://www.hp.com/techservers>

Contact your local HP sales or support representative if you need additional information.

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