

Release Notes

for the

ISR 9288 and ISR 9096 DDR

Voltaire GridVision

Software Revision 3.4.3

August 02, 2006

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1. Introduction

These release notes provide information on the new ISR 9288/9096 Double Data Rate (DDR) modules, features, and issues related to the ISR 9288/9096 Switch Software Revision 3.4.3. This release is based on the former Rev 3.4.2 and is **mandatory** for all ISR 9096/9288 DDR installations.

As a part of the switch software, the GridVision Fabric Manager and the GridVision Device Manager provide an embedded management functionality running under an InfiniBand switching platform.

The GridVision Fabric Manager runs the management of the whole fabric.

GridVision Device Manager runs the chassis management for the Voltaire switch family.

Since most notes are common to both the ISR 9288 and the ISR 9096, they shall hereby be referred to as “ISR 9XXX”. The actual product name (ISR 9288 or the ISR 9096) shall be used when referring to a specific feature or procedure.

2. System Requirements

2.1 InfiniScale III Firmware Revision

With Voltaire switch software Rev. 3.4.3, the minimum revision of InfiniScale III firmware is Rev. 0.8.4.

For DDR chassis the minimum InfiniScale III firmware is Rev.0.8.6 .

For more details regarding the upgrade procedure, please refer to the Software and Firmware Upgrade Process Section.

NOTE



It is mandatory to upgrade all InfiniScale-III switch chips in the fabric to the same FW version, for both managed and unmanaged switch platforms.

2.2 Java Run time Environment (JRE) V1.5

Voltaire switch software Rev. 3.4.3 GUI Requires JRE V1.5 (Former versions required JRE V1.4.) For JRE V1.5 installation package, please refer to Voltaire support site or the product CD supplied with the switch.

2.3 Router Modules

An ISR 9XXX chassis may be populated with sRBD-D, IPR and FCR router modules to provide multi protocol connectivity.

The router modules should comply with the following requirements:

- IPR: all modules in an ISR 9XXX chassis must have the same version.
Minimum requirement: IPR V1.3.0
- FCR: all modules in an ISR 9XXX chassis must have the same version.
Minimum requirement: FCR V3.4

For more details, please refer to the [ISR 9288/9096 Configuration of Routers Modules- Limitations](#) Section.

2.4 System Requirements Summary Table - When Configuring a DDR chassis

Software/Module	Version
sMB-HM Firmware	v0.8.6
SW	v3.4.3
JRE	v1.5
IPR	v1.3.0
FCR	v3.4

3. New Features for Rev 3.4.3

This section describes the feature related functionality added to Switch V3.4.3.

3.1 Overview

- Rev. 3.4.3 is a minor release for ISR 9XXX
 - Based on Rev. 3.4.2
 - Is mandatory in all ISR 9XXX new DDR installations
 - Not mandatory for installations currently running Rev. 3.4.2
- New content/features
 - DDR support
 - New firmware
 - Routing optimization: favoring DDR links over SDR links
 - Port counters file: added speed and xmitwait
 - Port manage utility: added option to change DDR/SDR link mode on the fly

- DDR port configuration mechanism:
 - Init time detection of erroneous DDR ports and bring down to SDR mode
 - Semi-automatic mechanism (with manual mode) for port setting (DDR/SDR)

These features are detailed in Appendix B and Appendix C.

3.2 DDR

- Support two new platforms: ISR 9096 DDR & ISR 9288 DDR
- GridVision Fabric Manager: indication of DDR switch systems, DDR modules and DDR links
 - System grouping for DDR systems
- Weighted routing for DDR links
- Port counters files:
 - Added *speed* column
 - Support *xmitwait* port counter (for InfiniScale III switch chips only)
- Port manage utility – added option to bring port to SDR or refreshing back to DDR (on the fly, intrusive – might break traffic going through this link)

These features are detailed in Appendix B and Appendix C.

3.3 Firmware

- Updated the firmware version to 0.8.4 (most modules). The DDR modules (sFB-12D, sFB-4D, sLB-24D) firmware version is 0.8.6.
- Chassis firmware can be upgraded from CLI (as in previous versions). Using this procedure the firmware files are retrieved from the embedded software package (V3.4.3).
- With V3.4.3, CLI added for chassis Firmware upgraded from FTP server. Using this procedure, the firmware files are retrieved from the FTP server and being used for the upgrade process.
- Fabric-wide in-band firmware upgrade for managed and unmanaged ISR 9024 platforms.
With V3.4.3, CLI added for upgrading firmware versions of remote ISR9024 platforms. As with chassis firmware upgrade, this in-band procedure also supports both:
 - using firmware files that are embedded in V3.4.3 software package
 - retrieving firmware files from an FTP server

3.4 CLI

- CLI for HW reset for sLB/sFB/Chassis
- CLI for setting the Ethernet link speed
- CLI support for broadcast address
- CLI for DDR port configuration mechanism

These features are detailed in Appendix B and Appendix C.

3.5 Debug Information

export logs – added web access to download the logs

Refer to Appendix B.2.5 for details on this new feature.

4. Additional Modifications to Rev 3.4.2

Refer to Appendix A, Additional Modifications to Rev 3.4.2.

5. Software and Firmware Upgrade Process

5.1 Upgrade Process

During the ISR 9XXX upgrade process, a single sMB module is installed in the chassis.

Switch ASICs are located on each sFB and sLB module.

Of the four possible sFB-4/12 (Fabric Board) modules, two are unique in that they are connected to the CPU units on the sMB modules. These modules are respectively located at the very left and right of the chassis (near slots sFB1 and sFB4).

To upgrade the ISR 9XXX:

- Step 1** Connect to the sMB via a serial console or a Telnet terminal.
- Step 2** Update the sMB software to Rev. 3.4.3. by activating the software upgrade process from the CLI, using the **Update Software** command.
- Step 3** The upgrade process installs the new software image onto the sMB Flash memory and reboots.
- Step 4** Upon booting, the software automatically detects the firmware version on the sFB-4/12 unit connected to the sMB. If a firmware older than Rev 0.4.0 is detected, it is automatically upgraded to the current Revision.

Step 5 In case of automatic firmware upgrade (as described in step 4 above), the system issues a request to power cycle the ISR 9XXX chassis. This request appears on all terminals.

Firmware Upgrade:

On the next boot, it is recommended that the user invokes a firmware upgrade for the entire chassis by using the CLI **Update Firmware** command. The firmware upgrade procedure must be followed by a power cycle of the chassis. For more details regarding the upgrade procedure, please refer to the Firmware Upgrade Section 4.5 of the Switch User Manual.

5.2 Upgrade Process for Redundant sMB Configuration

When two sMB modules are simultaneously installed in a system, upgrade the system by performing the following steps:

- Step 1** A single sMB is upgraded at a time. Once the first sMB is upgraded, power down the system and replace the first sMB module with the second sMB.
- Step 2** Update the second sMB software to Rev. 3.4.3 by activating the software upgrade process from the CLI, using the **Update Software** command.
- Step 3** Power down the system and install both sMB modules.
- Step 4** Power up the system in a redundant sMB configuration.

6. Bug Fixes

- SM stability and error handling
- Balanced routing for 5-stage CLOS networks
- RMPP stability

7. ISR 9XXX System Functionality and Limitations

#	Module	Summary
1	SM	Spine Consistency Routing Algorithm: The algorithm does not support ISR 9XXX I/O modules
2	Chassis Mgmt	Chassis management: After Swapping IP modules between chassis, expect delays in GUI management refresh.
3	CLI	The Local interface IP and the Fast interface IP should be under the same subnet. However, if the Local interface IP is not under the same subnet as Fast IP, the Fast IP is cleared and should be configured again.
4	Mgmt	The current Alarm Table is not replicated between sMBs. Therefore, after a failover, all alarms are lost.
5	System	<p>When upgrading from V3.4.0, the rack grouping feature might be disabled.</p> <p>Work around: enable rack grouping by resetting to factory-default via the CLI. CAUTION: This will cause you to lose all your settings. Contact your local representative for further support.</p>
6	VFM	Fabric statistics (PortCounters) file also contains a new column presenting the xmitwait port counter. However, this counter is not supported at this version. It presents a value of `0` for switch chips (InfiniScale III) ports, and `N/A` for HCA ports.
7	PM	<p>Supported functionality:</p> <ul style="list-style-type: none"> • Counter operation – only `delta` is supported • Reset scope – only `all` is supported

8. ISR 9XXX Connectivity Notes and Limitations

#	Functionality	Summary
	Performance Manager	The switch relay error counter (of the InfiniBand port performance management counter) increases every multicast packet (e.g., every ARP request issued by an InfiniBand host.)

9. ISR 9XXX Configuration of Routers Modules- Limitations

#	Functionality	Summary
1	IPR Version	All IPR modules in an ISR 9XXX chassis should have the same version. Minimal requirement: IPR V1.3.0
2	FCR Version	All FCR modules in an ISR9XXX chassis should have the same version. Minimal requirement: FCR V3.4
3	Router Configuration Of IP interfaces	Configuration of the IB-MNG interface of a router-module must be done from the Switch CLI ('io ip-address set' command). Configuring the IB-MNG interface of a router module via direct connection to the router CLI is not allowed (nor is it allowed via connecting through the CLI or via direct session to the router CLI).
4	Router Configuration Of IP interfaces	The IB-MNG interface must be on a different subnet than the other interfaces: <ul style="list-style-type: none"> • IB (IPoIB) interface Fast (ETH) interface
5	Router Insertion	When inserting a new router module into a chassis, the user

#	Functionality	Summary
		<p>must trigger manually the configuration of this module.</p> <p>There is no automatic detection of a new module. Use the following set of commands to configure the new router IP address:</p> <ul style="list-style-type: none"> Setting the IP for the router module via the switch CLI: <pre>ISR9288-04eb(config-cluster)# io ip-address set 9 1 172.25.3.96 255.255.0.0</pre> Resetting the switch SMB module Setting the management interface: <pre>ISR9288-04eb(config)# interface fast ISR9288-04eb(config-if-fast)# management- interface set</pre>
6	Router Removal	<p>When removing a router module from a chassis, the user must delete the configuration of the module from the chassis table:</p> <p>This can be done using one of the following methods:</p> <ul style="list-style-type: none"> Resetting the switch SMB module Setting the management interface: <pre>ISR9288-04eb(config)# interface fast ISR9288-04eb(config-if-fast)# management- interface set</pre>

10. Known Bugs in Rev 3.4.3

#	Module	Summary
1	CLI	Pressing "CTRL + C" during/after "update remote-firmware" command hangs the CLI. If needed open a new connection to complete the action. Power cycle the chassis when done.
2	CLI	When two sMBs are present in a chassis the <code>front show</code> command shows only one sMB, In the VDM the view shows both sMB cards.
3	CLI	When using PM "sLBPortCounter portReset" to reset a specific port, all ports of the sLB are being reset.
4	CLI	Wrong help is displayed under "PM" "sLBPortCounter portReset". It should be: "PM" "sLBPortCounter portReset" [slot #] [port-number]
5	CLI	Wrong help for setting IPoIB address. The right command is: <code>ip-address-ib set [ip-address] [netmask]</code>
6	Hardware	An update remote-firmware procedure on an ISR9024M system hangs the connection between the CPU and the InfiniScale-III chip on the remote ISR9024M system. Hence a remote-firmware procedure on an ISR9024M system should be followed by a manual power cycle. The problem does not exist in ISR9024S, ISR9024S-M, ISR9024D and ISR9024D-M.
7	VDM	The Power and Hot Swap LEDs on the sFB-4/sFB-4D GUI should be ON, however they are not ON. The modules are working correctly.
8	CLI/DDR	If the command <code>export ddr_config.csv</code> is run twice, you will get duplicate entries in <code>ddr_config.csv</code> . This does not happen when the command <code>export ddr_config.csv</code> is followed by the command <code>apply ddr_config</code> .
9	VDM	"Switch description" in "Device Info" window is wrong, the sFB information is shown instead of the Chassis info.
10	VDM CLI	"ddr-configuration" is applied only after chassis power cycle or if the module is reinserted. "ddr-configuration" is not applied after software reset of a module or the whole chassis.

Appendix A Additional Modifications to Rev 3.4.2

A.1 Partitioning

The following commands are available under the pkey menu:

```
ISR9096-3321(config-sm-pkey)# ?
partitioning-enable set      Sets the status for partitioning.
partitioning-enable show    Displays the status for partitioning.
pkey delete                  Deletes a selected pkey Table Entry.
pkey high show               Shows the high part of the pkey table.
pkey low show                Shows the low part of the pkey table.
pkey port-guid import        Imports the port guid from the fabric
                             into the Partition Key Table.
pkey port-guid set           Sets the port guid in the Partition Key
                             Table.
pkey set                     Sets the value in the Partition Key
                             Table.
pkey update                  Updates the Partition Key Table.
show active-nodes            Shows the active nodes in the fabric.
```

To set partitioning:

- Step 1** Begin with enabling the partitioning feature by running the command `partitioning-enable set enable`.
- Step 2** Reviewing the ISR 9288/9096 partition table, use the CLI commands `pkey high show` and `pkey low show`. The low show command will display partition table columns 0-8. The high show command will display partition table columns 9-15, as follows:

```
ISR9XXX(config-sm)# pkey low show
entry Port-GUID  Pkey0 Pkey1 Pkey2 Pkey3 Pkey4 Pkey5 Pkey6 Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000 ffff 0  0  0  0  0  0  0
```

Note: row #1 is the default, relates to each host and cannot be erased.

```
ISR9XXX(config-sm)# pkey high show
entry Port-GUID  Pkey8 Pkey9 Pkey10 Pkey11 Pkey12 Pkey13 Pkey14 Pkey15
|---|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000 0  0  0  0  0  0  0  0
```

- Step 3** Use the pkey set CLI command to add a partition to the ISR 9288/9096/9024 partitioning table. When adding a partition you need to specify the Pkey number [0-15] (column number), row number, pkey range [range > 0] (to set up the same pkey value over a range of rows, and the Pkey value.

Example:

This example shows how to set the pkey on a single row.

```
ISR9XXX(config-sm)# pkey set 9 1 1 0xf1f1
Change will be effective only after 'pkey update' command
```

Use the row range to set up a default pkey value over a row range. In this case the row number is the first row of the range. This would be used to set up a number of computers in a network to the same pkey.

Example:

```
ISR9288-0967(config-sm-pkey)# pkey set 2 1 2 0x55
Change will be effective only after 'pkey update' command
```

```
ISR9288-0967(config-sm-pkey)# pkey low show
entry Port-GUID      Pkey0  Pkey1  Pkey2  Pkey3  Pkey4  Pkey5  Pkey6  Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000  ffff  0      55      0      0      0      0      0
2  0x8f104039708bc  ffff  0      55      0      0      0      0      0
3  0x8f10403970898  ffff  0      55      0      0      0      0      0
4  0x8f10403970834  ffff  0      55      0      0      0      0      0
```

Note that all Pkey 2 (over rows 1 and 2) have been set to 55.

Output:

```
pkey set 2 2 2 0x55
```

- Step 4** When setting a Pkey to a specific node port by GUID, use the CLI command pkey port-guid set to create a new table entry for a specific GUID, as shown in the example below.

```
ISR9XXX(config-sm)# pkey port-guid set 2 0x11111111
```

- Step 5** Verify that the entry was added to the table by using the CLI pkey low or high show command, as shown below.

```
ISR9XXX(config-sm)# pkey low show
entry Port-GUID      Pkey0  Pkey1  Pkey2  Pkey3  Pkey4  Pkey5  Pkey6  Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000  ffff  0      0      0      0      0      0      0
2  0x11111111      0      0      0      0      0      0      0      0
```

Step 6 Once created use the set command pkey to define the Pkey value.

For example:

```
ISR9XXX(config-sm)# pkey set 1 2 10 0xf1fa
Change will be effective only after 'pkey update' command
```

Step 7 Verify that the new pkey was added to the table by using the CLI pkey low or high show command, as shown below.

```
ISR9XXX(config-sm)# pkey low show
entry Port-GUID      Pkey0 Pkey1 Pkey2 Pkey3 Pkey4 Pkey5 Pkey6 Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000 ffff  0    0    0    0    0    0    0
2  0x11111111      f1f1  0    0    0    0    0    0    0
```

Step 8 Run the command pkey update to update the Pkey table.

NOTE



The Partition Table update of the all HCA elements in the Fabric takes a few seconds.

To erase a row from the Pkey Table:

Step 1 Use the Pkey delete command, as shown in the example below.

```
ISR9XXX(config-sm)# pkey low show
entry Port-GUID      Pkey0 Pkey1 Pkey2 Pkey3 Pkey4 Pkey5 Pkey6 Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000 ffff  0    0    0    0    0    0    0
2  0x11111111      f1f1  0    0    0    0    0    0    0
ISR9XXX(config-sm)# pkey delete 2 2
Change will be effective only after 'pkey update' command
```

Row 2 has been deleted from the table in this example.

Step 2 Verify that the row was removed from the table by using the CLI pkey low or high show command, as shown below.

```
ISR9XXX(config-sm)# pkey low show
entry Port-GUID      Pkey0 Pkey1 Pkey2 Pkey3 Pkey4 Pkey5 Pkey6 Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000 ffff  0    0    0    0    0    0    0
```

Step 3 Run the pkey update command to update the Pkey Table.

To delete a pkey from a specific row:

Step 1 Use the `set pkey` command and set it to 0 (zero), as shown in the example below:

```
ISR9XXX(config-sm)# pkey low show
entry Port-GUID      Pkey0 Pkey1 Pkey2 Pkey3 Pkey4 Pkey5 Pkey6 Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000 ffff  7554 0    0    0    0    0    0
ISR9XXX(config-sm)# set pkey 1 2 10 0xf1fa
Change will be effective only after 'pkey update' command
```

Step 2 Verify that the pkey (7554 in this example) was removed from the row by using the CLI `pkey low` or `high show` command, as shown below.

```
ISR9XXX(config-sm)# pkey low show
entry Port-GUID      Pkey0 Pkey1 Pkey2 Pkey3 Pkey4 Pkey5 Pkey6 Pkey7
|---|-----|-----|-----|-----|-----|-----|-----|
1  0000000000000000 ffff  0    0    0    0    0    0    0
```

Step 3 Run the `pkey update` command to update the Pkey Table.

Pkey port-guid Import Command

Command: `pkey port-guid import`

Description: Imports the HCA port guid from the fabric into the Partition Key Table.

Syntax: `pkey port-guid import`

Example:

```
Switch(config-sm-pkey)# pkey port-guid import
Change will be effective only after 'pkey update' command
```

Appendix B CLI and GUI Changes in Rev 3.4.3

B.1 New CLI Commands

B.1.1 Privileged Mode

HARDWARE MENU

hardware	Changes to switch hardware mode.
update remote-firmware	Updates the firmware version.

Command: Hardware

Description: Changes to the Hardware Mode.

Syntax: hardware

This menu provides the commands available in Hardware Mode.

```
ISR9096-3009(hardware) ?
?           Displays the list of available commands.
? command   Displays the command usage string.
end         Ends the CLI.
exit        Exits to previous menu.
reset all   Reset Hardware to all system
reset sfb   Reset Hardware to a specific sfb
reset slb   Reset Hardware to a specific slb
```

Hardware syntax usage is as follows:

```
reset all   reset all
reset sfb    reset sfb [#]
reset slb    reset slb [#]
```

The following details the commands available under the Hardware Menu.

Command: reset all

Description: Resets the hardware of the whole system.

Syntax: reset all

Command: reset sfb

Description: Resets the hardware of a specific Fabric Board.

Syntax: reset sfb [#]

Example: reset sfb 2

Command: reset slb

Description: Resets the hardware of a specific Line Board.

Syntax: reset slb [#]

Example: reset slb 10

NOTE

Performing a hardware reset may affect the traffic.

UPDATE REMOTE FIRMWARE COMMAND

Command: update remote-firmware

Description: Updates the firmware version on remote ISR 9024 systems and resets the board. The image can be downloaded from the previously defined ftp server or from the local file system.

Important:

The image on the ftp must have the following name **voltaire_fw_images.tar**, otherwise the update remote-firmware command will not work.

Syntax: update remote-firmware update remote-firmware
 [lid#,all] [update-file-dir]

Where:

lid is the ISR 9024 lid

All applies to all the ISR 9024 systems in the network.

[update-file-dir] is the ftp server path where the images reside.

NOTE

If you omit to specify the ftp, the update firmware command will take the ISR 9024 image(s) from the local file system.

If a remote unit is an ISR9024M (managed), use telnet/ssh to perform a software reset (this limitation does not apply to the ISR9024D-M, ISR9024S-M)

Example:

```
ISR9096-3009# update remote-firmware all
----- SCAN STARTED -----
----- SCAN FINISHED --> START BURN ---
Log File : /tmp/firmware_larimar_upgrade.log
Total ISR9024 systems: 1
ISR9024_12 :0
ISR9024    :0
ISR9024D-M :1
ISR9024D   :0
ISR9024S-M :0
ISR9024S   :0
Estimated burning time : 0 hr. 1 min. 40 sec. .
-----

Found : 1 ISR9024_DM elements
1 lid 216 guid 0x0008f10400412c9a
FirmwareImage = /mnt/tmpfs_fw/firmware.ISR9024_DM.img
LID connection test: (send/receive 43 pkt.)
*****
Write-Protect disabled for lid 216
FirmwareVersion = 0.8.4
SystemGUID      = 0008f10400412c9b
NodeGUID        = 0008f10400412c9a
Burning ...
BURN - 100%
Verifying ...
VERIFY - 100%
Write-Protect enabled for lid 216
1 lid 216 guid 0x0008f10400412c9a burned_ok
Estimated time left: 0 hr. 0 min. 0 sec. .
-----

-----
-----
-----
1 System ISR9024_DM hop 2 lid 216 guid 0x0008f10400412c9a  reset
passed
-----
-----
Log File : /tmp/firmware_larimar_upgrade.log

Done.
```

UTILITIES MENU

IMPORTANT



The **error-find**, **find_bad_ports** and **width-check** scripts currently remain in the utilities menu for backward compatibility with software versions 3.4.2 and earlier. However, it is highly recommended not to use these scripts; instead use the port-verify utility.

```
Switch(utilities) ?
?           Displays the list of available commands.
? command   Displays the command usage string.
end          Ends the CLI.
error-find Scans active ports in the fabric for abnormal port
              counters.
exit         Exits to previous menu.
find_bad_ports Detects possible bad ports in fabric.
findpath     Finds a path to port GUID.
getpathrecord Performs a getpathrecord command.
lidtrace     Performs a trace between two fabric LIDs.
madstat      Performs a madstat port query command.
mcmember     Performs a mcmember command.
mctrace      Perform multicast trace command.
netdiscover  Displays the entire InfiniBand fabric topology.
port-manage  Performs a port-manage command.
port-verify  Performs a port-verify command.
sminfo       Queries information from active Subnet Manager
              (SM).
smpdump      Dumps Subnet Manager (SM) attributes and
              information.
smpex        Utility used to send MAD packets to a destination
              LID.
switchlock   Performs a switchlock command
vendstat     Queries vendor specific information of a switch
              LID.
width-check Scans active ports in fabric for reduced link
              widths.
zero-counters Zeroes all port counter information in fabric.
```

Port Manage Command

New syntax:

```
[-S lid port] - Reset the port and set Enabled Speed to SDR
[-D lid port] - Reset the port and set Enabled Speed to SDR/DDR
```

Command: port-manage

Description: This is a debugging utility for advanced users only. This utility enables the user to manage ports on the fabric and to change the status of a port (enable/disable, etc.)

port-manage is used to trigger a physical state change of the specified port. This command is useful in case the active Width/Speed of a specific port must be changed without actual cable reconnection.

This utility also enables to set a port to SDR and refresh back to DDR, changing the link mode on the fly. Note that this option is intrusive and may disrupt the traffic going through this link.

Syntax: port-manage [-v] [-f] <-d|-e|-r> <LID> <PORT>

Options:

```
[-v] - Increase output verbosity level
[-f] - Force disabling or resetting a port even when
      the port is located on the Access Path (path/way to
      the specific port)
[-d lid port] - Disable the port
[-e lid port] - Enable the port (set port state machine to polling
              state)
[-r lid port] - Reset the port
[-S lid port] - Reset the port and set Enabled Speed to SDR
[-D lid port] - Reset the port and set Enabled Speed to SDR/DDR
[-h] - Show this help
```

Example:

```
#port-manage -r 17 21
```

Where r = reset, LID=17, PORT=21

New Madstat Commands

```
madstat Y <lid|path> [<port>] [<set phys_state>] - Get/Set
port phys_state port physical states: 1 [Sleep], 2 [Polling], 3
[Disabled]
madstat W <lid|path> [<port>] [<set enabled_width>] - Get/Set
port enabled width port widths: 1 [1x], 2 [4x], 4 [8x], 8 [12x]
madstat B <lid|path> [<port>] [<set enabled_speed>] - Get/Set
port enabled speed port speeds: 1 [SDR], 2 [DDR], 4 [QDR]
```

New Port-Verify Options

```
[-S] - Check port(s) Speed - any SDR link considered as bad link."  
[-f] - Show flow counters (only 64 bit counters, valid on Voltaire  
switches only).
```

New Netdiscover Options (for debug or development purposes only)

```
[-g] : show grouping info.  
[-S [mono|bad|mbad][sdr]] : speed check.  
width remains unchanged.  
<rlx> : Reset only 1x ports .
```

B.1.2 Config Mode

DDR Mode

The DDR features and Menu are described in detail in Appendix C.

Fast Interface Menu - **link speed set** Command

Command: link-speed set

Description: Sets the speed of the ETH link to: auto-negotiation, 10baseT-HD, 10baseT-FD, 100baseTx-HD, or 100baseTx-FD

Syntax: link-speed set [auto-negotiation, 10baseT-HD, 10baseT-FD, 100baseTx-HD, 100baseTx-FD]

Example:

```
Switch(config-if-fast)# link-speed set  
link-speed set auto-negotiation
```

Expected results:

```
ISR9096-3321(config-if-fast)# ip-address-fast show  
fast interface ip is 172.25.22.103  
ip mask is 255.255.0.0  
broadcast ip is 172.25.255.255  
management interface is eth0:1  
link speed is auto-negotiation  
ISR9096-3321(config-if-fast)#
```

Local Interface Menu - **ip-broadcast-local set** Command

Command: ip-broadcast-local set

Description: Sets the local broadcast address.

Syntax: ip-broadcast-local set [ip address]

Example:

```
Switch(config-if-LOCAL)# ip-broadcast-local set 172.25.7.10
```

Expected Results:

```
Switch(config-if-LOCAL)# ip-address-local show
local ip is 172.25.7.10
ip mask is 255.255.0.0
```

B.2 VDM

B.2.3 Viewing Information

To view the Fabric Board (sFB) information:

- Click the desired sFB on the Device Tree.

Figure 1 and Figure 2 respectively display the display the Information Windows of the ISR 9288 and ISR 9096 Fabric with DDR.



Figure 1. Information on the ISR 9288 Fabric Board with DDR



Figure 2. Information on the ISR 9096 Fabric Board with DDR

To view the Line Board information:

- Click the desired sLB on the Device Tree. The sLB-24D Information Window appears.

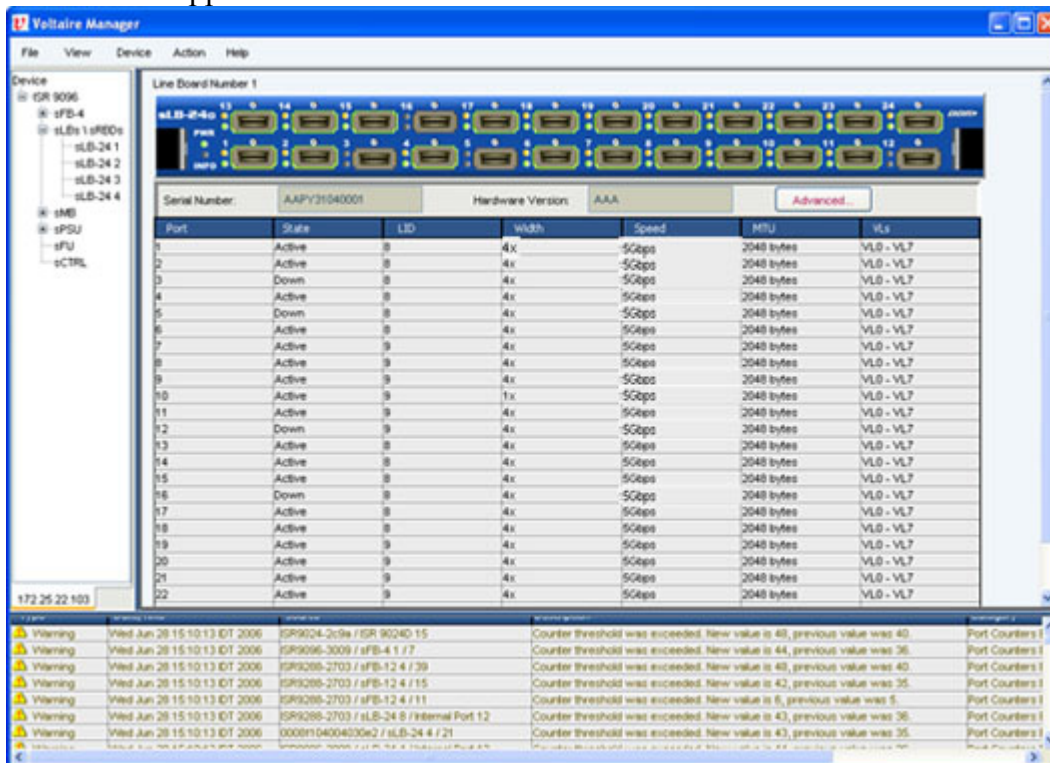


Figure 3. sLB-24D Information

Speed	Displays the current signaling rate of the link: current default for SDR is 2.5 Gbps, current default for DDR is 5 Gbps.
-------	-----------------------------------------------------------------------------------------------------------------------------

B.2.4 GridVision Fabric Manager

Figure 4 and Figure 5 shows the main Window of the Fabric Manager with DDR boards:

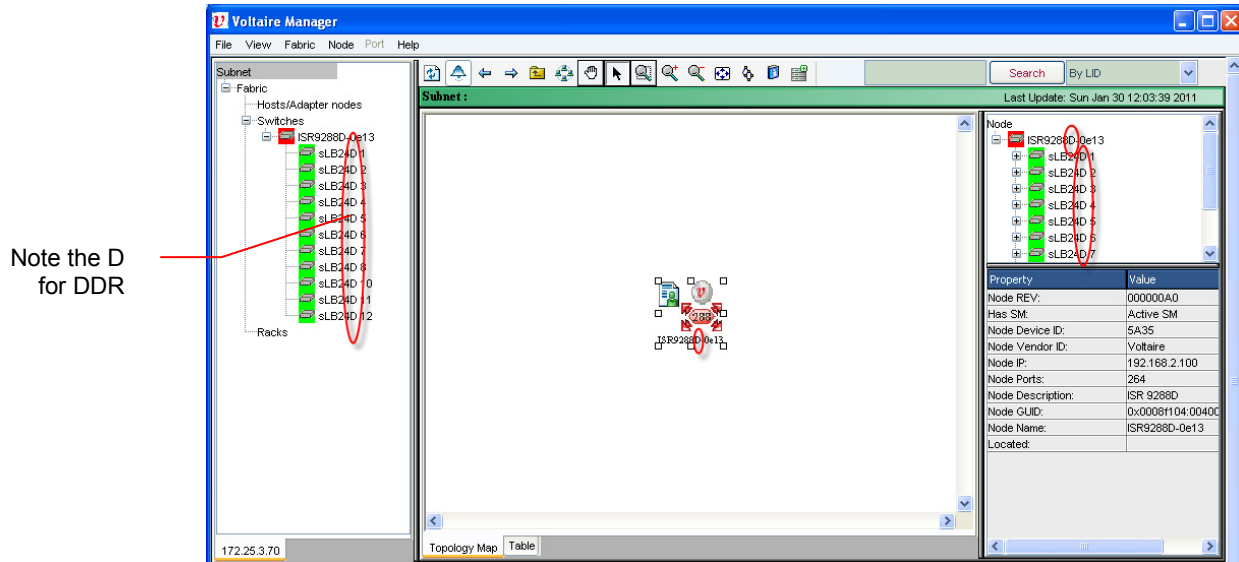


Figure 4. Fabric Manager with DDR - Main Window

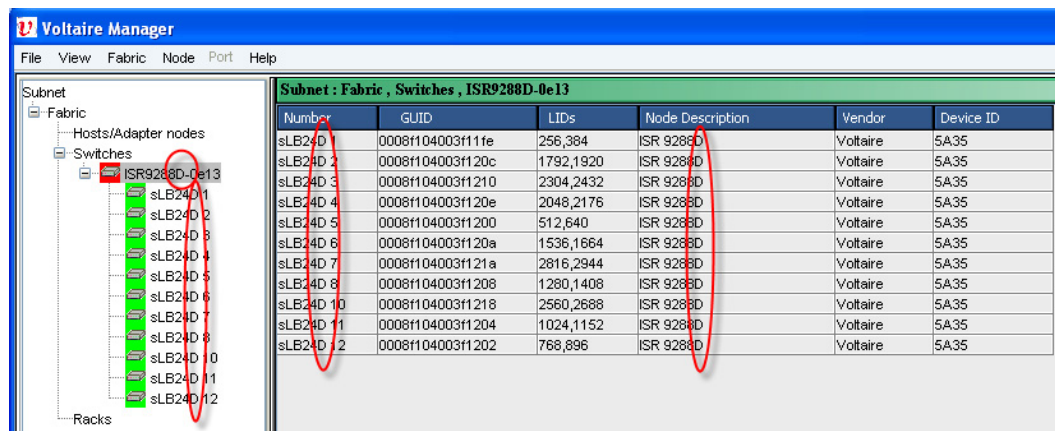


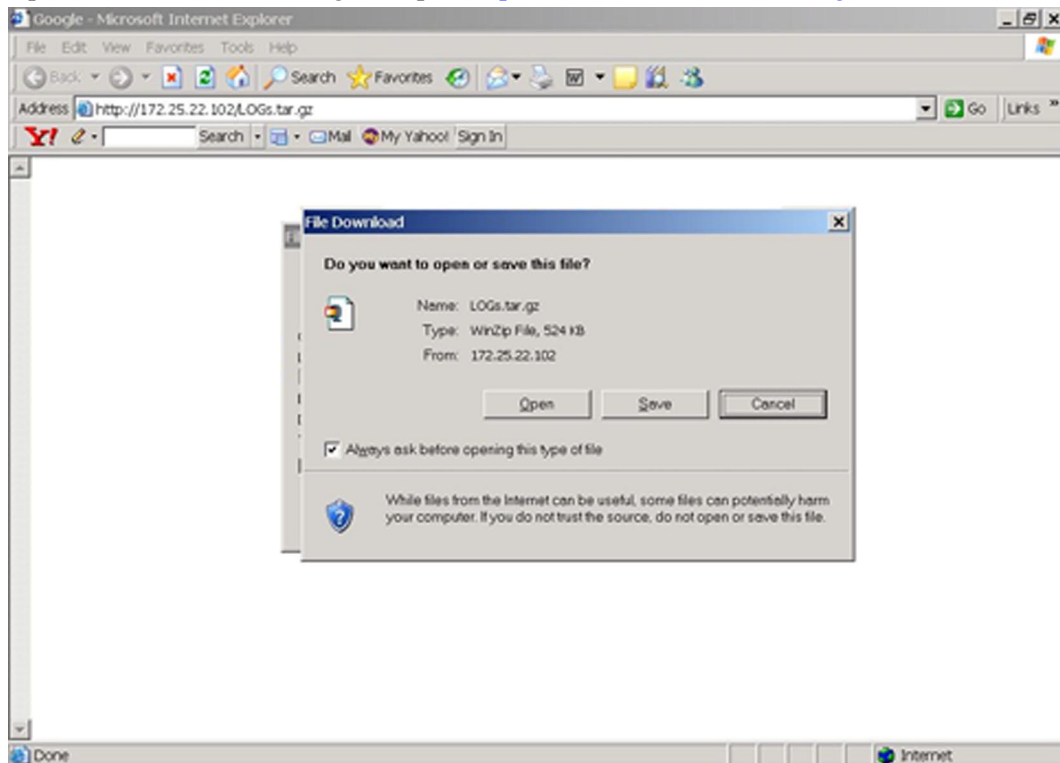
Figure 5. Fabric Manager with DDR

B.2.5 Diagnostics

Viewing and Downloading Logs from a Browser

You can view error and event logs in a browser by entering the IP address and errorlog.txt or eventlog.txt by specifying in the address field the Host IP and the log file name, as shown in the following example: <http://172.25.3.16/errorlog.txt>.

You can also download logs from the web using a browser by specifying in the address field the IP and the Exported Log file name, provided such a file exists on the ftp, as show in the following example: <http://172.25.22.102/LOGs.tar.gz>



This downloads all the logs gathered and uploaded to the ftp in a single zip file for debugging purposes.

portcounters.csv

Speed	Link speed: SDR – 2.5 Gbps, DDR – 5 Gbps
-------	------------------------------------------

	A		B		C		D									
1	Mon Jul 10 06:46:35 2006															
2	LID		IBPort		PortGUID		NodeType									
3	4		15		0008f104003f0676		Switch									
4	4		20		0008f104003f0676		Switch									
5	6		13		0008f104003f0677		Switch									
6	6		20		0008f104003f0677		Switch									
7	8		14		0008f104003f0690		Switch									
8	8		18		0008f104003f0690		Switch									
9	8		22		0008f104003f0690		Switch									
10	10		16		0008f104003f0691		Switch									
11	10		23		0008f104003f0691		Switch									
12	18		1		0008f10403960861		Channel Adapter									
13	20		1		0008f10403960879		Channel Adapter									
14	22		1		0008f104039608b1		Channel Adapter									
15	24		1		0008f104039608d9		Channel Adapter									
16	26		1		0008f10403962755		Channel Adapter									
17	28		1		0008f10403965011		Channel Adapter									
18	30		1		0008f10403965019		Channel Adapter									
19	32		1		0008f1040396501d		Channel Adapter									
20	36		1		0008f10403965225		Channel Adapter									
21																
22	Port Counters Summary															
23																
24	=====															
25	Alert Ports:		9													
26	Total Switches:		8													
27	Switch Ports:		9													
28	Switch Alert Ports:		0													
29	Total HCAs:		9													
30	HCA Ports:		9													
31	HCA Alert Ports:		9													
	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1																
2	Width	State	MTU	NumVLs	HOQLife	PlatformT	ModuleTy	ModuleInc	Port	Name	NodeIP	DeviceID	MLID(#Joi	SymErr	LinkRecov	
3	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		2	4	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
4	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		2	2	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
5	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		2	12	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
6	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		2	8	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
7	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		4	5	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
8	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		4	16	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
9	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		4	13	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
10	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		4	24	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
11	4X	ACTIVE	2048	VLD-VL7	16	ISR 9096	sLB-24		4	20	ISR9096-3	192.168.2	5a09	0000(#0)	0	0
12	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	0008f104c	193.168.7	5a44	c000(#1)	1149	0
13	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	0008f104c	193.168.7	5a44	c000(#1)	700	9
14	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	0008f104c	193.168.7	5a44	c000(#1)	14603	107
15	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	0008f104c	0.0.0.0	5a44	c000(#1)	58	0
16	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	Kip22	192.168.6	5a44	c000(#1)	89	6
17	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	omni5_volt	192.168.6	5a44	c000(#1)	9	0
18	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	omni7_volt	1.1.1.3	5a44	c000(#1)	10	0
19	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	0008f104c	0.0.0.0	5a44	0000(#0)	63	1
20	4X	ACTIVE	2048	VLD-VL7	16	HCA 400	HCA		0	1	Kip21	192.168.6	5a44	c000(#1)	50	0

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
1															
2	LinkRecov	LinkDown	RcvErr	RcvRemot	RcvSwitch	XmtDiscar	XmtConst	RcvConst	LocalLink	ExcessBu	VL15Drop	XmitBytes	XmitBytes	RcvBytes	RcvBytes
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	13860	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	6	0	0	0	685	0	0	0	0	1	0	0	0.02	0
13	9	6	1	0	0	690	0	0	0	0	0	0.01	0	0.02	0
14	107	7	99	0	0	694	0	0	0	0	0	0.01	0	0.02	0
15	0	6	0	0	0	694	0	0	0	0	2	0.01	0	0.02	0
16	6	20	1030	0	0	0	0	0	0	0	0	0	0	0.01	0
17	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
19	1	8	0	0	0	1211	0	0	0	0	0	0	0	0	0
20	0	5	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0
21															
1	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
2	XmitPkts	XmitPkts/	RcvPkts	RcvPkts/	XmitWaits	PeerLID	PeerBPo	PeerPortC	PeerPlatf	PeerModu	PeerModu	PeerPort	PeerName	Speed	Status
3	21459	0	449	0	0	28	1	0008f104c	HCA 400	HCA	0	1	omni5_volt	5 GBs	OK
4	21459	0	449	0	0	30	1	0008f104c	HCA 400	HCA	0	1	omni7_volt	5 GBs	OK
5	21462	0	452	0	0	20	1	0008f104c	HCA 400	HCA	0	1	0008f104c	5 GBs	OK
6	21459	0	449	0	0	18	1	0008f104c	HCA 400	HCA	0	1	0008f104c	5 GBs	OK
7	436	0	436	0	0	32	1	0008f104c	HCA 400	HCA	0	1	0008f104c	5 GBs	OK
8	21459	0	449	0	0	26	1	0008f104c	HCA 400	HCA	0	1	Kip22	5 GBs	OK
9	14530	0	21240	0	0	36	1	0008f104c	HCA 400	HCA	0	1	Kip21	5 GBs	OK
10	21461	0	451	0	0	22	1	0008f104c	HCA 400	HCA	0	1	0008f104c	5 GBs	OK
11	21453	0	443	0	0	24	1	0008f104c	HCA 400	HCA	0	1	0008f104c	5 GBs	OK
12	18555	0	107892	0	N/A	6	20	0008f104c	ISR 9096	sLB-24	2	8	ISR9096-3	5 GBs	ALERT
13	29298	0	115818	0	N/A	6	13	0008f104c	ISR 9096	sLB-24	2	12	ISR9096-3	5 GBs	ALERT
14	19585	0	106176	0	N/A	10	16	0008f104c	ISR 9096	sLB-24	4	24	ISR9096-3	5 GBs	ALERT
15	19450	0	105854	0	N/A	10	23	0008f104c	ISR 9096	sLB-24	4	20	ISR9096-3	5 GBs	ALERT
16	2110	0	79505	0	N/A	8	18	0008f104c	ISR 9096	sLB-24	4	16	ISR9096-3	5 GBs	ALERT
17	613	0	25637	0	N/A	4	15	0008f104c	ISR 9096	sLB-24	2	4	ISR9096-3	5 GBs	ALERT
18	615	0	25685	0	N/A	4	20	0008f104c	ISR 9096	sLB-24	2	2	ISR9096-3	5 GBs	ALERT
19	4134	0	7270	0	N/A	8	14	0008f104c	ISR 9096	sLB-24	4	5	ISR9096-3	5 GBs	ALERT
20	77510	0	52739	0	N/A	8	22	0008f104c	ISR 9096	sLB-24	4	13	ISR9096-3	5 GBs	ALERT

Figure 6. PortCounters.csv File – Example

Appendix C DDR Mode

C.1 DDR Port Configuration Mechanism

C.1.1 module-initialization-phase (init)

- The module-initialization-phase consists of the following steps:

Step 1 Physical reset of links that came up in SDR mode or DDR ports with errors above threshold.

Step 2 Detection of erroneous DDR ports and downgrade to SDR mode.

- This phase is based on the symbol error counter.
- CLI control parameters: init-mode enable/disable, symbol-error-threshold, init-mode-interval

C.1.2 monitor-and-detection-phase (run time)

- Semi-automatic mechanism (with manual mode) for port setting (DDR/SDR)
- Run time detection of erroneous DDR ports based on **receive** error counter
- Persistent user configured port table (User Configuration Table) in Repository
- CLI:
manual operations: Import, Export, Apply
User actions: set port to SDR, set port to DDR, disable port
control parameters: enable/disable, threshold, time-interval

C.1.3 User Configuration Table

The User Configuration Table stores the User predefined ports and faulty ports that were discovered during initialization and runtime phases.

The User Configuration Table is persistent and kept in the repository. This table can be exported to file (for example to a remote FTP site), edited, and then imported from file (thus overriding current configuration table in repository with the new configuration from the file). In order for the changes to take effect in the chassis, the user must apply the changes.

The table is empty by default.

The user can configure faulty port during the initialization phase or/and during the runtime phase.

An example of a DDR User Configuration Table is shown below.

DDR User Configuration Table (Port Configuration File)

#Platform Type	Module Type	Module Index	Switch Chip Index	Port Index	Mode
ISR9096	sLB-24D	1	1	1	ForceSDR
ISR9288	sFB-12D	1	1	1	SetDDR
ISR9096	sFB-4D	1	1	1	Disable

Modes:

- ForceSDR – forces port speed to SDR (the runtime process detects faulty ports and may add them automatically to the User Configuration Table when performing DDR export and import).
- SetDDR – sets the enabled port speed to allow DDR mode (Note: setDDR is never added automatically to the table)
- Disable – disables the port physical link (Note: Disable is never added automatically to the table)

NOTE



ForceSDR and SetDDR apply to DDR chassis only. Disable mode is used to disable the port physical links of both SDR and DDR chassis.

C.1.4 Recommended Installation Flow

Step 1 Clean-up all Fabric in SDR mode by performing the following steps:

- Wait until module-initialization-phase completes
- Set fabric to SDR using the `set-fabric-to-sdr` CLI command (under the DDR menu).
- Verify all ports are in SDR mode by checking the result after running `set-fabric-to-sdr` CLI command. This can also be done via the `port-verify` utility or by checking the PortCounters.csv file.
- If all ports are not in SDR mode, repeat step b) and c) until there are no DDR ports.
- Clean-up all cables (HCA, sFB, sLB, etc...)

Step 2 Power cycle the whole fabric – back to DDR mode.

Step 3 Per Chassis:

- a) The module-initialization-phase will run automatically
- b) Run traffic (approximately 10 minutes) MPIP or Pallas All2All
- c) Export ddr-config to repository/file via the CLI
- d) Optional: manual edit & import of ddr-config file (CLI)
- e) Apply ddr-config (CLI)

Step 4 Optional: Approach the master subnet manager (VSM) and apply routing re-configuration. (CLI)

This procedure is recommended in order to re-calculate the fabric routing scheme taking into consideration the updated speed of each link.

C.1.5 DDR CLI

Config Menu

Switch(config)# ?	
?	Displays the list of available commands.
? command	Displays the command usage string.
alarms	Changes to Alarms configuration mode.
cluster	Changes to Cluster configuration mode.
ddr	Changes to ddr configuration mode.
end	Ends the CLI.
exit	Exits to previous menu.
factory-default	Switches back to factory default, and reboots the system.
ftp	Changes to FTP configuration mode.
group	Changes to Group configuration mode.
interface IB	Changes to IB Interface configuration mode.
interface LOCAL	Changes to LOCAL Interface configuration mode.
interface fast	Changes to Fast Interface configuration mode.
names	Changes to Names configuration mode.
ping	Sends echo messages.
pm	Changes to PM configuration mode.
route	Changes to Route configuration mode.
sm	Changes to SM configuration mode.
snmp	Changes to SNMP configuration mode.
watchdog mode set	Enables or disables the Watchdog.
watchdog mode show	Shows the Watchdog mode.
watchdog timeout show	Shows the Watchdog timeout.

DDR Menu

NOTE



Some commands listed under this menu also apply to SDR chassis even though all the commands names contain “ddr”.

For example, the user may add disabled ports to the configuration for SDR chassis.

On SDR chassis initialization and runtime phases are not applicable.

The following are the commands available under the DDR menu.

? command	Displays the command usage string.
apply-ddr-config	Applies the User Configuration Table commands
clear-ddr-config	Clears the User Configuration Table
ddr-config clear-ddr-config-on-reboot set	Enables or disables clearing of the Configuration Table on reboot
ddr-config init-mode set	Enables or disables the init configuration phase
ddr-config init-polling-interval set	Sets the init configuration phase polling interval
ddr-config recv-err-threshold set	Sets the port receive errors threshold - This threshold is enforced during the runtime configuration phase.
ddr-config runtime-mode set	Enables or disables the runtime configuration phase
ddr-config runtime-polling-interval set	Sets the runtime configuration phase polling interval
ddr-config show	Shows all configuration parameters
ddr-config sym-err-threshold isr9096 set	Sets the symbol error threshold for the ISR9096 - This threshold is enforced during the init configuration phase.
ddr-config sym-err-threshold isr9288 set	Sets the symbol error threshold for the ISR9288 - This threshold is enforced during the init configuration phase.
end	Ends the CLI
exit	Exits to previous menu
exportFile ddr-setup-config	Exports the Configuration Table from the database (repository) to the remote FTP server. The name of the remote file is ddr_config.csv
importFile ddr-setup-config	Imports ddr_config.csv configuration file from the remote FTP server
set-fabric-to-sdr	Sets the fabric to SDR.

DDR syntax usage is as follows:

```
Switch(config-ddr)#
apply-ddr-config          apply-ddr-config
clear-ddr-config          clear-ddr-config
ddr-config clear-ddr-config-on-reboot set
                           ddr-config clear-ddr-config-on-reboot set
                           [enable, disable]
ddr-config init-mode set
                           ddr-config init-mode set [enable, disable]
ddr-config init-polling-interval set
                           ddr-config init-polling-interval set
                           [int (10..120) seconds]
ddr-config recv-err-threshold set
                           ddr-config recv-err-threshold set
                           [int (0..65535)]
ddr-config runtime-mode set
                           ddr-config runtime-mode set
                           [enable, disable]
ddr-config runtime-polling-interval set
                           ddr-config runtime-polling-interval set
                           [int (10..600) seconds]
ddr-config show            ddr-config show
ddr-config sym-err-threshold isr9096 set
                           ddr-config sym-err-threshold isr9096 set
                           [int (0..65535)]
ddr-config sym-err-threshold isr9288 set
                           ddr-config sym-err-threshold isr9288 set
                           [int (0..65535)]
exportFile ddr-setup-config
                           exportFile ddr-setup-config [remote path]
importFile ddr-setup-config
                           importFile ddr-setup-config [remote path]
set-fabric-to-sdr          set-fabric-to-sdr
```

The following details the commands available under the DDR Menu:

Command: apply-ddr-config

Description: Applies the commands set up by the user in the User Configuration Table. This table is stored in the repository. It includes all the problematic ports detected during the module initialization and runtime phases or ports that were predefined by the user. When the apply-rules command is called, the software goes over the table and applies it one by one.

Syntax: apply-ddr-config

Command: clear-ddr-config

Description: Clears the User Configuration Table.

Syntax: clear-ddr-config

Command: ddr-config clear-ddr-config-on-reboot set

Description: Enables or disables clearing of the Configuration Table on reboot. When this command is enabled, the User Configuration Table is automatically cleared after reboot.

Syntax: ddr-config clear-ddr-config-on-reboot set
[enable, disable]

Example:

```
ddr-config clear-ddr-config-on-reboot set enable
```

Command: ddr-config init-mode set

Description: Enables or disables the init configuration phase. When this command is set to enable, it gathers all the symbol errors and identifies the faulty ports after power up. If during the module initialization phase a port is detected as problematic, it is automatically set to SDR mode and a corresponding entry is added to the table. This command is enabled by default.

Syntax: ddr-config init-mode set [enable, disable]

Example:

```
Switch(config-ddr)# ddr-config init-mode set enable
```

Expected Results:

```
Switch(config-ddr)# ddr-config show
```

```
ddr configuration:
```

Init mode	enable
Runtime mode	enable
Port bringup mode	disable
Symbol error ISR9096 threshold	10
Symbol error ISR9288 threshold	100
Init phase polling-interval	10
Recv error threshold	3
Runtime error polling interval	60
Clear ddr config on reboot	disable

Command: ddr-config init-polling-interval set

Description: Sets the initialization configuration phase polling interval. The user can set polling interval ranging between 10 and 120 seconds.

Syntax: ddr-config init-polling-interval set
[int (10..120) seconds]

Example:

```
Switch(config-ddr)# ddr-config init-polling-interval set 9  
Switch(config-ddr)#
```

Expected Results:

```
Switch(config-ddr)# ddr-config show  
  
ddr configuration:  
  
Init mode                      enable  
Runtime mode                   enable  
Port bringup mode              disable  
Symbol error ISR9096 threshold 10  
Symbol error ISR9288 threshold 100  
Init phase polling-interval    10  
Recv error threshold           3  
Runtime error polling interval 60  
Clear ddr config on reboot     disable
```

Command: ddr-config recv-err-threshold set

Description: Sets the port receive errors threshold ranging between (0..65535). This threshold is enforced during the runtime phase. This means that above the set threshold a port will be considered as problematic.

Syntax: ddr-config recv-err-threshold set [int (0..65535)]

Example:

```
Switch(config-ddr)# ddr-config recv-err-threshold set 10
```

Expected Results:

```
Switch(config-ddr)# ddr-config show

ddr configuration:

Init mode                enable
Runtime mode             enable
Port bringup mode        enable
Symbol error ISR9096 threshold    10
Symbol error ISR9288 threshold    100
Init phase polling-interval      9
Recv error threshold          10
Runtime error polling interval    60
Clear ddr config on reboot        disable
```

Command: ddr-config runtime-mode set

Description: Enables or disables the runtime mode during which the system monitors the internal ports of the chassis using pre-defined time intervals and receive error threshold (command: ddr-config recv-err-threshold set). The system does not automatically set those ports to SDR to avoid breaking the traffic and does not insert the detected problematic ports to the User Configuration Table immediately but instead collects them in memory. In order for the changes to take effect, the user must run the apply-ddr-config command or exportFile ddr-setup-config or importFile ddr-setup-config commands.

Syntax: ddr-config runtime-mode set [enable, disable]

Example:

```
Switch(config-ddr)# ddr-config runtime-mode set disable
```

Expected Results:

```
Switch(config-ddr)# ddr-config show
```

```
ddr configuration:
```

Init mode	enable
Runtime mode	disable
Port bringup mode	enable
Symbol error ISR9096 threshold	10
Symbol error ISR9288 threshold	100
Init phase polling-interval	10
Recv error threshold	10
Runtime error polling interval	60
Clear ddr config on reboot	disable

Command: `ddr-config runtime-polling-interval set`

Description: Sets the polling interval in recv phase. This polling interval is enforced during the runtime phase. The user can set polling interval ranging between 10 and 600 seconds. If the system detects faulty ports, it collects them and stores them in memory. The system does not automatically set those ports to SDR to avoid breaking the traffic. In order for the changes to take effect, the user must run the `apply-ddr-config` command.

Syntax: `ddr-config runtime-polling-interval set`
`[int (10..600) seconds]`

Example:

```
Switch(config-ddr)# ddr-config runtime-polling-interval set 40
```

Expected Results:

```
Switch(config-ddr)# ddr-config show
ddr configuration:
```

Init mode	enable
Runtime mode	disable
Port bringup mode	enable
Symbol error ISR9096 threshold	10
Symbol error ISR9288 threshold	100
Init phase polling-interval	10
Recv error threshold	1
Runtime error polling interval	40
Clear ddr config on reboot	disable

Command: `ddr-config show`

Description: Shows all configuration parameters.

Syntax: `ddr-config show`

Example:

```
ddr configuration:
```

Init mode	enable
Runtime mode	enable

Port bringup mode	disable
Symbol error ISR9096 threshold	10
Symbol error ISR9288 threshold	100
Init phase polling-interval	10
Recv error threshold	3
Runtime error polling interval	60
Clear ddr config on reboot	disable

Command: `ddr-config sym-err-threshold isr9096 set`

Description: Sets the symbol error threshold for the ISR9096. This threshold is enforced during the init phase. This threshold can be a integer ranging between 0 and 65535.

Syntax: `ddr-config sym-err-threshold isr9096 set`
`[int (0..65535)]`

Example:

```
Switch(config-ddr)# ddr-config sym-err-threshold isr9096 set 50
```

Expected Results:

```
Switch(config-ddr)# ddr-config show

ddr configuration:

Init mode                enable
Runtime mode             disable
Port bringup mode        enable
Symbol error ISR9096 threshold  50
Symbol error ISR9288 threshold  100
Init phase polling-interval  10
Recv error threshold      1
Runtime error polling interval  40
Clear ddr config on reboot  disable
```

Command: ddr-config sym-err-threshold isr9288 set

Description: Sets the symbol error threshold for the ISR9288. This threshold is enforced during the init phase. This threshold can be a integer ranging between 0 and 65535.

Syntax: ddr-config sym-err-threshold isr9288 set
[int (0..65535)]

Example:

```
Switch(config-ddr)# ddr-config sym-err-threshold isr9288 set 99
```

Expected Results:

```
Switch(config-ddr)# ddr-config show

ddr configuration:

Init mode                enable
Runtime mode             disable
Port bringup mode        enable
Symbol error ISR9096 threshold 50
Symbol error ISR9288 threshold 99
Init phase polling-interval 9
Recv error threshold      10
Runtime error polling interval 40
Clear ddr config on reboot disable
```

Command: exportFile ddr-setup-config

Description: Exports the User Configuration Table from the database (repository) to the remote FTP server. The name of the remote file is (and must be) ddr_config.csv.

Syntax: exportFile ddr-setup-config [remote path].

Example:

```
Switch(config-ddr)# exportFile ddr-setup-config /uri
Succeeded to DUMP To Local disk /tmp/ddr_config.csv
Succeeded to put file in remote computer. New path
/uri/ddr_config.csv
ISR9288D-0e13(config-ddr)#
```

Expected result:

The ddr_config.csv file shown below displays the exported file information.

	A	B	C	D	E	F	G	H	I
1	#Platform	Module type	Module inc	Anafa inde	Port index	Mode	DDR		
2	ISR9288	sFB-12	1	1	10	ForceSDR	0	0	0
3	ISR9288	sFB-12	1	3	2	ForceSDR	0	0	0
4	ISR9288	sFB-12	2	1	16	ForceSDR	0	0	0

Command: importFile ddr-setup-config

Description: Downloads ddr_config.csv from the remote FTP server, using previously defined server name, user name, and password. When using the importFile command and Apply, the array is merged with the file in the repository, where the newly detected ports written to the User Configuration Table are now available for use.

Syntax: importFile ddr-setup-config [remote path].

Example:

```
Switch(config-ddr)# importFile ddr-setup-config /uri
Updating DDR with new setup file
ISR9288D-0e13(config-ddr)#
```

Command: set-fabric-to-sdr

Description: Sets the fabric to SDR. This command scans the fabric and provides a report showing how many SDR ports and DDR were found in the fabric. When finding DDR ports, the system forces them into SDR mode. This may take a while. This script rescans the fabric and reports how many DDR ports are still in the fabric. If for any reason there are still DDR ports in the fabric, run this command again until the fabric is entirely set to SDR.

Syntax: set-fabric-to-sdr

Example:

```
Switch(config-ddr)# set-fabric-to-sdr
LID:896 Line#12-Chip#2 P#12 <-> Spine#4-Chip#3 P#24 LID:3328  #
Speed 5.0 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#8 <-> Spine#3-Chip#2 P#24 LID:4224  #
Speed 5.0 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#9 <-> Spine#3-Chip#3 P#24 LID:4352  #
Speed 5.0 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#10 <-> Spine#4-Chip#1 P#24 LID:3072  #
Speed 5.0 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#11 <-> Spine#4-Chip#2 P#24 LID:3200  #
Speed 5.0 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#12 <-> Spine#4-Chip#3 P#24 LID:3328  #
Speed 5.0 Width 4X SymErr 0

Found 493 ports - SDR 36  DDR 457
Force 457 ports to SDR

Scanning fabric for DDR ports...
DDR check summary: no DDR ports in the fabric
ISR9288D-0e13(config-ddr)#
```

Expected results:

```
Switch(config-ddr)# set-fabric-to-sdr
LID:896 Line#12-Chip#2 P#8 <-> Spine#3-Chip#2 P#24 LID:4224 #
Speed 2.5 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#9 <-> Spine#3-Chip#3 P#24 LID:4352 #
Speed 2.5 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#10 <-> Spine#4-Chip#1 P#24 LID:3072 #
Speed 2.5 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#11 <-> Spine#4-Chip#2 P#24 LID:3200 #
Speed 2.5 Width 4X SymErr 0
LID:896 Line#12-Chip#2 P#12 <-> Spine#4-Chip#3 P#24 LID:3328 #
Speed 2.5 Width 4X SymErr 0
Found 493 ports - SDR 493 DDR 0
Force 0 ports to SDR

Scanning fabric for DDR ports...
DDR check summary: no DDR ports in the fabric
```

Note that the link speed has now been set to 2.5 (SDR) instead of 5 (DDR)