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Introduction

This guide is intended to show you how to configure 'Just a bunch of disks' (JBOD) on the Cisco 12G SAS Modular RAID Controller in a C-Series server.

Caveats:

* JBOD disks are not able to take advantage of any hardware caching on the RAID controller.

<http://www.redbooks.ibm.com/redpapers/pdfs/redp5234.pdf> (general documentation on RAID / JBOD)

* If caching is required on these disks, then you can put them into a RAID 0 array (striping) and present this to the OS. Recall that RAID 0 has no parity, so please note that the more disks added to a RAID 0, the larger your failure domain, or the greater the chance of data loss across all disks due to a single disk failure. This is the nature of RAID 0. Good performance, intolerant of even a single disk failure. This is acceptable for some applications and use cases however.

Prerequisites

- C-Series Server
- Cisco 12G SAS Modular Raid Controller
- 1 or more HDD
- Access to CIMC / KVM

Components Used

- Cisco C240-M4 running 2.0(6d) CIMC
- Cisco 12G SAS Modular Raid Controller running 4.250.00-3632

Configure

As a safety precaution, if you have a pre-existing RAID configuration, please back up the data on that Virtual Disk (VD) prior to making these changes.

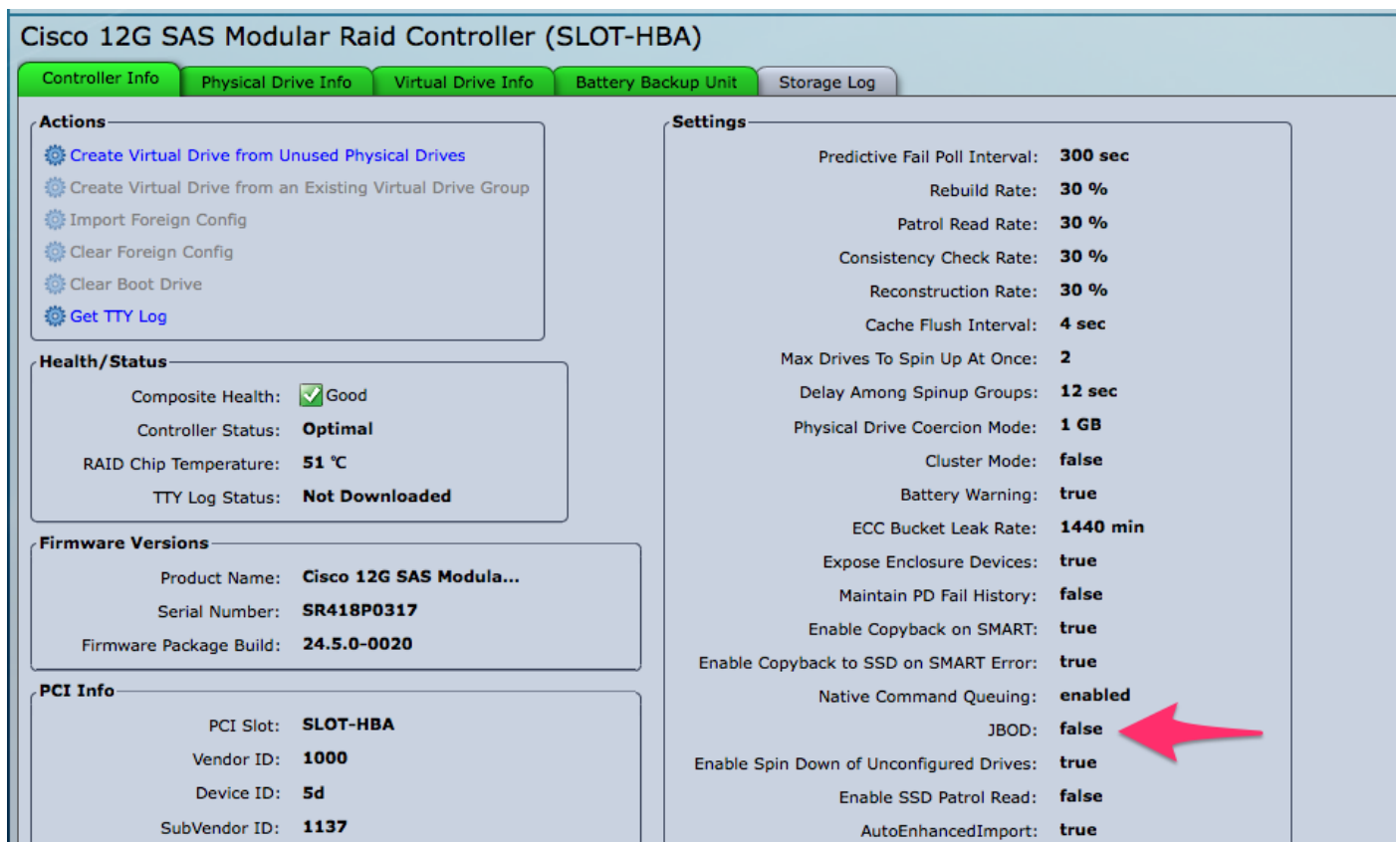
If you have existing Virtual Disk (VD), RAID 1 for instance, that you wish to preserve, its configuration should be preserved after enabling JBOD, though a reboot is required to enter the pre-boot RAID configuration menu (CTRL+R) to enable JBOD.

At the time of this writing, it appears that JBOD is disabled on the controller by default, and cannot be enabled on the 12G Controller via the CIMC, only the pre-boot RAID Configuration menu (CTRL+R).

If you wish for ALL disks to be JBOD, then delete any existing Virtual Disks (VD) on the RAID. This should release the Physical Disks (PD) into 'Unconfigured Good'. This can be done via CIMC or CTRL+R pre-boot RAID configuration menus. **This should be expected to delete data on any Virtual Disk that you Delete so back up important data accordingly.**

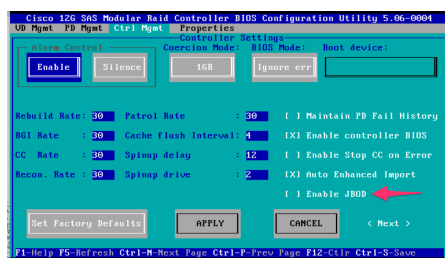
Confirm if JBOD is enabled or disabled already:

- 1) Log into CIMC.
- 2) Click Storage > Select 12G controller > Controller Info tab.



Enable JBOD

- 1) If disabled, reboot the host, and press CTRL+R to enter the RAID configuration screens.
- 2) Press CTRL+N twice, navigate to 'Enable JBOD' and press 'space'. Ensure that the [X] shows in the square brackets.
- 3) Press CTRL+S to save.



4) Press Escape to exit.

5) This will convert ALL available disks to JBOD. Again, in my testing, it did not convert PD allocated to VD (RAID 1) to JBOD, and my OS was still in tact on that RAID 1.

6) Confirm JBOD is enabled.

Cisco 12G SAS Modular Raid Controller (SLOT-HBA)

Controller Info Physical Drive Info Virtual Drive Info Battery Backup Unit Storage Log

Actions

- Create Virtual Drive from Unused Physical Drives
- Create Virtual Drive from an Existing Virtual Drive Group
- Import Foreign Config
- Clear Foreign Config
- Clear Boot Drive
- Get TTY Log

Health/Status

Composite Health: Good
Controller Status: **Optimal**
RAID Chip Temperature: **51 °C**
TTY Log Status: **Not Downloaded**

Firmware Versions

Product Name: **Cisco 12G SAS Modula...**
Serial Number: **SR418P0317**
Firmware Package Build: **24.5.0-0020**

PCI Info

PCI Slot: **SLOT-HBA**
Vendor ID: **1000**
Device ID: **5d**
SubVendor ID: **1137**
SubDevice ID: **db**

Manufacturing Data

Manufactured Date: **2014-05-02**

Settings

Predictive Fail Poll Interval: **300 sec**
Rebuild Rate: **30 %**
Patrol Read Rate: **30 %**
Consistency Check Rate: **30 %**
Reconstruction Rate: **30 %**
Cache Flush Interval: **4 sec**
Max Drives To Spin Up At Once: **2**
Delay Among Spinup Groups: **12 sec**
Physical Drive Coercion Mode: **1 GB**
Cluster Mode: **false**
Battery Warning: **true**
ECC Bucket Leak Rate: **1440 min**
Expose Enclosure Devices: **true**
Maintain PD Fail History: **false**
Enable Copyback on SMART: **true**
Enable Copyback to SSD on SMART Error: **true**
Native Command Queuing: **enabled**
JBOD: **true**
Enable Spin Down of Unconfigured Drives: **true**
Enable SSD Patrol Read: **false**
AutoEnhancedImport: **true**

Capabilities

RAID Levels Supported: **Raid 0**
Raid 1
Raid 5

If you don't already have a Virtual Disk (VD), then you can configure some number of disks as 'Unconfigured Good' so you can add them to a new Virtual Disk (VD) or RAID Volume.

Cisco 12G SAS Modular Raid Controller (SLOT-HBA)

Controller Info Physical Drive Info Virtual Drive Info Battery Backup Unit Storage Log

Physical Drives

Controller	Physical Drive Number	Status	Health	Boot Drive	Drive Firmware	Coerced Size	Manufacturer Model	Type
SLOT-HBA	1	Unconfigured Good	Good	true	5705	285148 MB	TOSHIBA	HDD
SLOT-HBA	3	JBOD	Good	false	5705	285148 MB	TOSHIBA	HDD

General

Enclosure Device ID: **0**
Physical Drive Number: **1**
LSI Drive Number: **1**
Power State: **active**
Device ID: **1**
Sequence Number: **3**
Media Error Count: **0**
Other Error Count: **0**

Actions

- Make Global Hot Spare
- Make Dedicated Hot Spare
- Prepare For Removal
- Set State as JBOD
- Set as Boot Drive

Status

Locator LED: Turn On

You can now toggle the disks between 'Unconfigured Good' (which can be added to RAID) or 'JBOD' from within the CIMC.

You will find that for any PD that is a member of a VD / RAID Group, you do not have the option convert it to JBOD. The PD must be removed from the VD / RAID Group prior to getting the option to convert it to a JBOD disk.