Doc. reference: bullion-HT-001	BULLION How To	novascale bullion instruments for business
Product:	novascale bullion	Issued : January 14, 2011
Subject:	Create a Raid 1 under the Web Bios interface	
Abstract:	Example of creation of a Raid 1 including two new drives, using the Web Bios interface of the LSI MegaRAID® SAS 9261-8i board.	



Goal : Create a Raid 1 including two new drives

• Step 1 : Enter in the WebBios interface

Step 2 : create the Raid 1

- Launch the Configuration Wizard
- Add disks to Array, create a new Drive Group
- Add Drive Group to a Span
- Define proporties of Raid
- Save the configuration
- Initialise the Raid volume
- Step 3 : Verify the boot list order



Enter in the WebBios interface

- At the start of the novascale bullion server, press [Ctrl]+[H] when this message is displayed.
- Press the [Space] key when the message "Hit [Space] for Boot Menu" is displayed.
- In the BIOS interface, go to "Boot Maintenance Manager" then [Enter],
- on "Boot Options", press [Enter],
- go down to "Set Legacy BEV Drive Order" and press [Enter]
- On the line "BEV Drive #0", press [Enter] to modify,
- then select "<LEGACY PCI DEVICE>" and validate by [Enter].
- Save the changes by selecting the line "Commit Changes and Exit"
- and press [Enter].
- Press [Esc] to go back to the main menu.
- Go down to "Boot Manager" and press [Enter],
- Select the line "LEGACY PCI DEVICE", press [Enter] to display the interface of the
- WEBBIOS utility allowing to configure the LSI MegaRaid SAS adapter.

NOTE: It is recommended to configure the mouse in "Single cursor mode ", inside the Remote Console window.



- After clicking the 'Start' button, the WebBios interface shows the existing configuration : with the Drive Group 0 in Raid 1 including disks in slot 0 and slot 1.
- The disks in slot 2 and slot 3 are flagged « Unconfigured » and will be included in a new Drive Group



Click on « Configuration Wizard »



Connector Control Keyboard Mouse Vitual Media View Connector Control Keyboard Mouse Vitual Media View Image: Connector Control Keyboard Mouse Ciri+*Alk+*Delete Second Image: Connector Configuration Wizard Second Second Second Image: Configuration Wizard Second Second Second Second Configuration Wizard guides you through the steps for configuring the MegaRAID Second Second Second Image: Configuration Wizard guides you through the steps for configuring the MegaRAID Second Second Second Image: Configuration Wizard guides group through the steps are as follows: Image: Configuration Scond prives into Drive Groups. Second group definitions Second group definitions Second group definition Second group definion <td< th=""><th>Permete Console</th><th></th><th></th></td<>	Permete Console		
Configuration View Preview View Preview Preview View Preview P	Connection Control Keyboard Mo	ause Virtual Media View	
Current Product Current Product Configuration Wizard guides you through the steps for configuring the MegaRAID system easily and efficiently. The steps are as follows: 1. Drive Group definitions Group drives into Drive Groups. 2. Virtual Drive definitions Derive configuration before it is saved. Please choose appropriate configuration type: Clear Configuration Clear Configuration Allows you to clear existing configuration only. New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add Configuration *, then click we not we have the state to be			
HegaRAID BIOS Config Utility Configuration Wizard Configuration Wizard guides you through the steps for configuring the MegaRAID system easily and efficiently. The steps are as follows: 1. Drive Group definitions Group drives into Drive Groups. 2. Virtual Drive definitions Define virtual drives using those drive groups. 3. Configuration Preview Preview configuration before it is saved. Please choose appropriate configuration type: Image: Clear Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Select « Add configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add configuration w, then click « Next » Single mouse mode entered, press Alt+F12 to leave FPS: 10 In: 329 B/s Out: 36 B/s Image: Clear Select with the select of the select			
Configuration Wizard guides you through the steps for configuring the MegaRAID system easily and efficiently. The steps are as follows: 1. Drive Group definitions Group drives into Drive Groups. 2. Virtual Drive definitions Define virtual drives using those drive groups. 3. Configuration Preview Preview configuration before it is saved. Please choose appropriate configuration type: Clear Configuration Allows you to clear existing configuration only. New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Select « Add Configuration and then adds new drives to the configuration. This is the safeet operation as it does not result in any data loss. Select « Add Configuration », then click « Next » Single mouse mode entered, press Alt+F12 to leave <th>MegaRAID BIOS Config Utilit</th> <th>y Configuration Wizard</th> <th></th>	MegaRAID BIOS Config Utilit	y Configuration Wizard	
Configuration Wizard guides you through the steps for configuring the MegaRAID system easily and efficiently. The steps are as follows: 1. Drive Group definitions Group drives into Drive Groups. 2. Virtual Drive definitions Define virtual drives using those drive groups. 3. Configuration Preview Preview configuration before it is saved. Please choose appropriate configuration type: Image: Clear Configuration Clear Configuration Allows you to clear existing configuration only. Image: New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Image: Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add Configuration », then click « Next »			
system casily and efficiently. The steps are as follows: 1. Drive Group definitions Group drives into Drive Groups. 2. Virtual Drive definitions Define virtual drives using those drive groups. 3. Configuration Preview Preview configuration before it is saved. Please choose appropriate configuration type: Image: Clear Configuration Clear Configuration Allows you to clear existing configuration only. Image: New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Image: New Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add Configuration », then click « Next »	Configuration Wizard guide	es you through the steps for configuring the MegaRAID	
1. Drive Group definitions Group drives into Drive Groups. 2. Virtual Drive definitions Define virtual drives using those drive groups. 3. Configuration Preview Preview configuration before it is saved. Please choose appropriate configuration type: Clear Configuration C Clear Configuration Allows you to clear existing configuration only. New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. c Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add Configuration *, then click with the click wi	system easily and efficien	tly. The steps are as follows:	
2. Virtual Drive definitions Define virtual drives using those drive groups. 3. Configuration Preview Preview configuration before it is saved. Please choose appropriate configuration type: C Clear Configuration Allows you to clear existing configuration only. New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. c Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s Select	1. Drive Group definitions	Group drives into Drive Groups.	
3. Configuration Preview Preview configuration before it is saved. Please choose appropriate configuration type: C Clear Configuration Allows you to clear existing configuration only. New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add Configuration », then click « Next » Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s Out: 36 B/s	2. Virtual Drive definitions	Define virtual drives using those drive groups.	
Please choose appropriate configuration type: Clear Configuration Allows you to clear existing configuration only. New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s Select Add	3. Configuration Preview	Preview configuration before it is saved.	
Pleaded charge appropriate configuration cype: C Clear Configuration Allows you to clear existing configuration only. New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Single mouse mode entered, press Alt+F12 to leave FPS: 10 In: 329 B/s Out: 36 B/s	Discos alegas accordances		
 Clear configuration New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add Configuration », then click « Next » 	Please choose appropriate co	onriguration type:	
 New Configuration Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost. Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Select « Add Configuration », then click « Next » 	C Clear configuration	Allows you to clear existing configuration only.	
 Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Single mouse mode entered, press Alt+F12 to leave 	C New Configuration	Clears the existing configuration. If you have any existing data	
Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. Image: Cancel Image: Next Image: Next Select « Add Configuration », then click « Next » Single mouse mode entered, press Alt+F12 to leave FPS: 10 In: 329 B/s Out: 36 B/s Out: 36 B/s	0	in the earlier defined drives, the data will be lost.	
Add Configuration Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss. ▲ Cancel Next Single mouse mode entered, press Alt+F12 to leave FPS: 10 In: 329 B/s Out: 36 B/s			
Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s Select « Add Configuration », then click			
As it does not result in any data loss. Configuration », then click « Next » Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s	• Add Configuration	configuration. This is the safest operation	Select « Add
Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s Source		as it does not result in any data loss.	Configuration »,
X Cancel Next			then click
Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s		X Cancel Mext	« Next »
Single mouse mode entered, press Alt+F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s			
Single mouse mode entered, press Alt+F12 to leave FPS: 10 In: 329 B/s Out: 36 B/s			
Single mouse mode entered, press Alt+F12 to leave FPS: 10 In: 329 B/s Out: 36 B/s			
Single mouse mode entered, press Alt+F12 to leave FPS: 10 In: 329 B/s Out: 36 B/s			
	Single mouse mode entered, press Alt+	-F12 to leave FP5: 10 In: 329 B/s Out: 36 B/s 🤱	



Under « Drives » area, unselect the line 'Backplane'. Select the lines relative to the drives in slot2 and slot3. (hold the Control key for multiple selection).

Click « Add To Array ».





In 'Drive Groups' area, a new « Drive Group1 » is created.

Click « Accept DG »



7

Remote Console	
Connection Control Keyboard Mouse Virtual Media View	
🎩 🚳 🔧 🍫 😫 🖳 💢 🐘 😽	Ctrl+*Alt+*Delete 💙 🖑
MegaRAID BIOS Config Utility Config Wizard - Dri	ve Group Definition
Drive Group Definition: To add drives to Dr Unconf Good drives Group. Drive additi button.	rive Group,hold Control key while selecting and click on Add to Array. Then Accept Drive on can be undone by selecting the Reclaim
Drives	Drive Groups
Backplane (252)	Drive GroupO Size:135.972 GB K: Backplane: (252), Slot:0, SAS, HDD, 1 Drive Group1 Size:135.972 GB K: Backplane: (252), Slot:2, SAS, HDD, 1 Backplane: (252), Slot:3, SAS, HDD, 1 Drive Group2
💁 Add To Array	1 Reclaim
	Cancel

Click « Next » button



8

Remote Console	
Connection Control Keyboard Mouse Virtual Media View	
🎩 🐼 🗞 😵 🖳 📜 👠 🖓 🗐	Ctrl+*Alt+*Delete 🔽 🍰
MegaRAID BIOS Config Utility Config Wizard – Span I	Definition
	- JIP
Span Definition: To add array hole to a drop-down.Click on Ad span.Array Hole addit Reclaim button.	Span, select an array hole from the Id To Span. Array hole will be added to the tion can be undone by selecting the
Array With Free Space	Span
Add to SPAN	The Reclaim
	X Cancel 📢 Back 🕪 Next

The « Drive Group1 » appears in the « Array with Free Space ».

Click « Add to SPAN »



9

Remote Console	→ .	
Connection Control Keyboard Mouse Virtual Media View		
4 🐼 🔧 🤣 😫 🖼 🖍 🐘	Ctrl+*Alt+*Delete 💌 🎆	
MegaRAID BIOS Config Utility Config Wizard – Sj	pan Definition	
Span Definition: To add array hole drop-down.Click o span.Array Hole a Reclaim button.	to a Span, select an array hole from the m Add To Span. Array hole will be added to the ddition can be undone by selecting the	
Array With Free Space	Span	
	Drive Group:1,RO, R1,271.945 GB	The « Drive Group1 » appears in the Span area.
Add to SPAN	Reclaim	Click « Next » button
Single mouse mode entered, press Alt+F12 to leave	FP5: 6 In: 2,44 kB/s Out: 208 B/s 🤱	Bull

10

Remote Console		
Connection Control	Keyboard Mouse Virtual Media Vi	iew
🎩 🚱 🔧 🕯	5) 😫 🖳 📜 👠 🕮	Ctrl+*Alt+*Delete 🖌 🍪
MegaRAID BIOS Co	mfig Utility Config Wizard	- Virtual Drive Definition
RAID Level	RAID1 V	Drive Group 0
Strip Size	64 KB	
Access Policy	RW	
Read Policy	Normal	
Write Policy	Write Back with BBU	
IO Policy	Cached 🔻	Next ID Possible PAID Levels
Drive Cache	NoChange 👤	R0:271-945 GB R1:135-972 GB
Disable BGI	No	
Select Size	135.972 GB 🔻	
	📮 Accept	Reclaim
		~∑ Cancel ∢ m Back m > Next
Single mouse mode ente	red, press Alt+F12 to leave	FPS: 1 In: 1,29 kB/s Out: 90 B/s

The « Virtual Drive Definition » page allows to set the Raid properties. In this example, there is no needs to change the values.

Click « Accept ».



11

Remote Console -> 🗔 🗖 🔀
Connection Control Keyboard Mouse Virtual Media View
💵 🤯 💫 🤣 🖳 💢 ኲ 🖓 🚰 Ctrl+*Alt+*Delete 🔽 🖑
MegaRAID BIOS Config Utility Confirm Page
Write Back with BBU enables Write Back caching when BBU is installed and charged. It provides optimal balance between data safety and performance. However, slower performance should be expected when BBU is not installed, not fully charged or running through re-learn cycle.
Are you sure you want to select Write Back with BBU mode?
No Yes
Single mouse mode entered, press Alt+F12 to leave FP5: 11 In: 408 B/s Out: 36 B/s S

Generally, the «Write Back with BBU » mode is activated.

Click « Yes » button



12



The Virtual drive « VD1 » appears in the tree.

Click « Next » button.



Remote Console		
Connection Control Keyboard Mouse Virtual Media View		
1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Ctrl+*Alt+*Delete 🔽 🐇	
MegaRAID BIOS Config Utility Config Wizard - Pr	review	
Configuration Preview: This is the continue this configuration	nfiguration defined. Click ACCEPT to save vation.	
Drives	Virtual Drives	
Backplane (252)	Drive Group 0 VD 0 Drive Group 1 VD 1 VD 1	Preview of the new configuration.
	X Cancel	Click "Accept" button.
Single mouse mode entered, press Alt+F12 to leave	FP5: 7 In: 1,88 kB/s Out: 198 B/s 🦂	Bull

14

Remote Console	→
Connection Control Keyboard Mouse Virtual Media View	
4 🚱 🔧 🤣 🖳 🧮 📜 🎠 🕼 🖓 🚰 Ctrl+*Alt+*Delete 🔽 🖑	
MegaRAID BIOS Config Utility Confirm Page	LSIX
Save this Configuration ?	



Remote Console Connection Control Keyboard Mouse Virtual Media View Image: Ima	*Alt+*Delete 🗸 炎		
MegaRAID BIOS Config Utility Confirm Page All data on the new Virtual Drives will be los	st. Want to Initialize?	LSIS	Click « Yes » to confirm the
			new Virtual Drive.
Single mouse mode entered, press Alt+F12 to leave	FP5: 0 In: 0 B/s Out:	0 B/s 🤱	



🚆 Remote Console	
Connection Control Keyboard Mouse Virtual Media View	
💵 🚱 🌭 🦃 😫 🖼 ኲ 🐘	Ctrl+*Alt+*Delete 🔽 🍪
MegaRAID BIOS Config Utility Virtual Drives	LSIX
Abort Progress Operation VD1 0% Initialization Progress	VDO: RAID1: 135.972 GB: Optimal VD1: RAID1: 135.972 GB: Initializ
	 Fast Initialize Slow Initialize Check Consistency Properties Set Boot Drive (current= NONE) Go Reset
Home	em Back
Single mouse mode entered, press Alt+F12 to leave	FPS: 4 In: 6,42 kB/s Out: 60 B/s 🤱

The «'Progress' bar appears for a short time.





18



The Virtual Drive 1, belonging to the Drive Group 1 is in Optimal state. It includes drives in slot 2 and slot 3.



• Verify the boot list order

- Reboot the novascale bullion server.
- Press the [Space] key when the message "Hit [Space] for Boot Menu" is displayed.
- In the BIOS interface, go to "Boot Maintenance Manager" then [Enter],

	Boot Maintenance Manager
Change the order	<asus <table="" change="" crw-5232as="" order="" the=""> Change the order Image State</asus>
Commit Changes and Ex Discard Changes and Ex	ASUS CRU-5232AS IBA GE Slot 0100 v1338 EFI Internal Shell EFI USB Device EFI USB Device 1 (Bus 04 Dev 00) PCI RAID Adapter
+ =Move Selection U	p - =Move Selection Down <enter>=Complete Entry Esc=Exit without Save</enter>

From the interface, the boot order can be set using a list with:

EFI devices

• only the selected item for each kind of legacy device. NOTE: In the boot order list, there is no way to have two devices from the same kind of legacy.

Select the line to be pushed at the top of the Boot List. Use the '+' key to move the selected line. Press 'Enter'.

Go down to 'Commit Changes and Exit', press 'Enter'.

