

MegaRAID Software User Manual

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Summary

This document explains how to create a RAID 5 or RAID 50 structure and hard disk check settings on MegaRAID software.

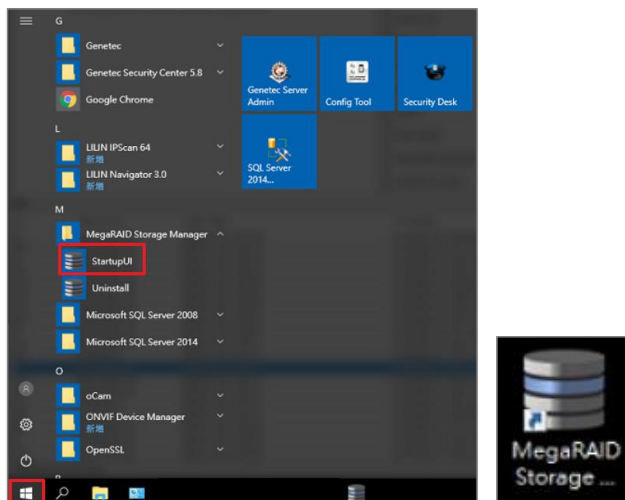
Supported Models

NAV08036/072/108A, NAV1036/072/108AB, NAV16036/072/108AB,
NAV24036/072/108AB

Chapter 1 Start Using MegaRAID Software

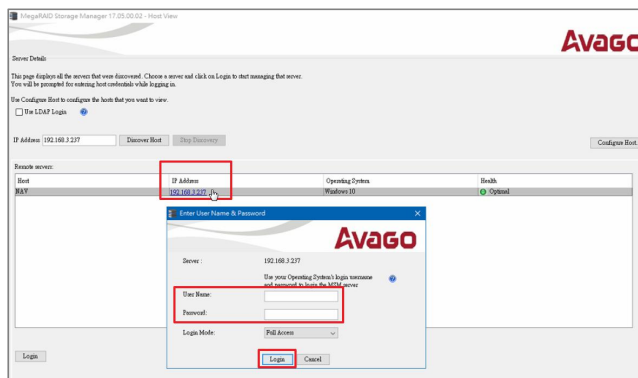
You can follow either of the following steps to explore the world of MegaRAID:

Go to Start→All Programs→MegaRAID Storage Manager→StartupUI
Click the “MegaRAID Storage Manager” icon on the desktop.



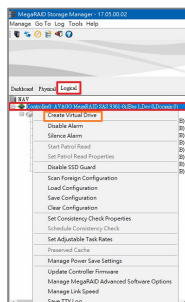
1-1 Account Login

Click on the IP Address and enter a user name and password to enter Storage Manager interface.



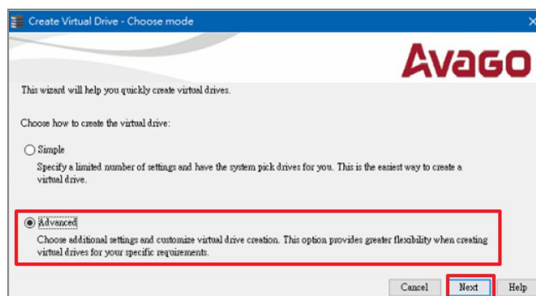
Chapter 2 How to Create a RAID 5

Click on Logical→mouse right-click on LSI Controller→Create Virtual Drive.



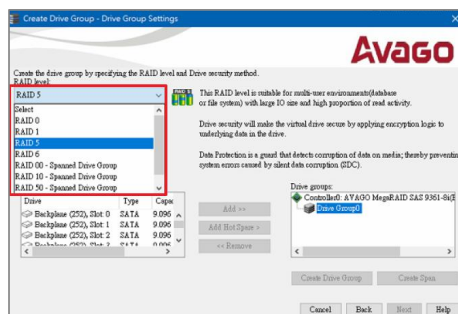
2-1 Advanced Options

Tick on Advanced→Next



2-2 RAID 5 Mode

Select RAID 5 mode (Example: RAID 5).

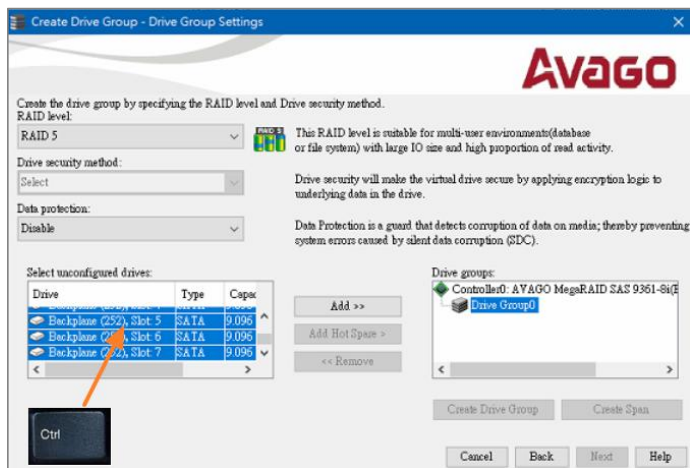


Note: RAID 5 requires at least 3 hard drives, and RAID 50 requires at least 6 hard drives.

Note: RAID 5 is recommended for 16-bay and below models. And RAID 50 is recommended for 24-bay models.

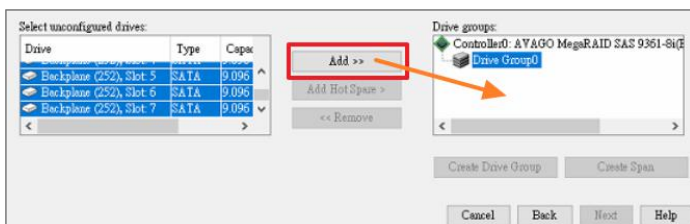
2-3 Add a RAID 5 Hard Drives

Press and hold the "Ctrl" key on the keyboard, select the RAID 5 hard drive to be added.



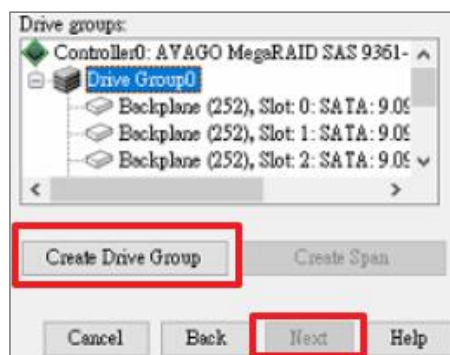
2-4 Add a RAID 5 Group

After selecting the number of hard drives, click the "Add" button to join the "Drive Groups" on the right box.



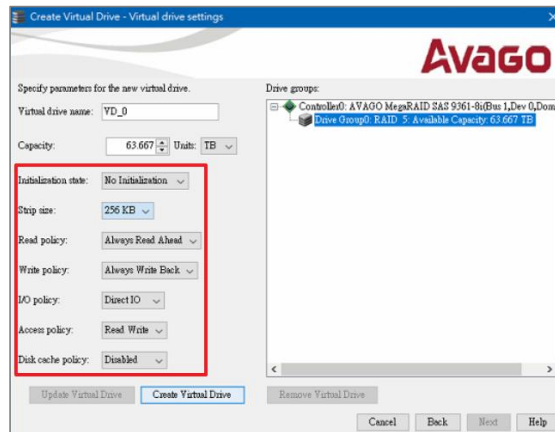
2-5 Create a Drive Group

On the Drive Group, added hard drives are shown. Please click the "Create Drive Group" button for the system to go next.



2-6 Virtual Drive Setting

After referring to the setting in the red box, please click the “Create Virtual Drive” button.



Disk cache policy is described below:

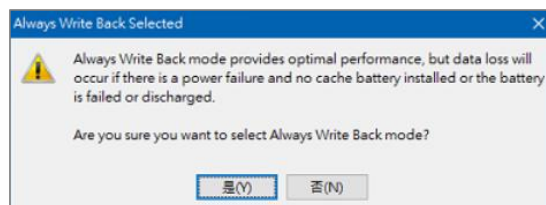
- If the host environment has a UPS uninterruptible power supply UPS system, please set: Enabled.
- If the host environment has no UPS uninterruptible power supply UPS system, please set: Unchanged or Disabled.

Note 1: After the Disk Cache Policy is enabled, data is written directly to the RAID CARD cache, and then written to the hard disk when the system IO is idle. This will help speed up the hard disk writing speeds. But if the power is suddenly cut off (the RAID CARD does not have a backup BBU battery), it is easy to lose data.

Note 2: Due to NAV16036/072/108A, NAV24036/072/108A front panel, it is not applicable to enable Disk Cache Policy.

2-7 BBU Battery Alert

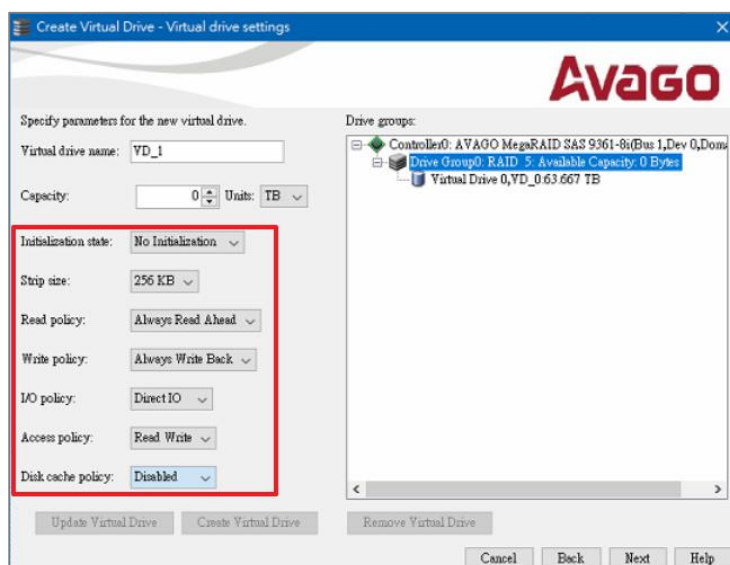
After the disk sector is created, the system will prompt battery safety issues, please click the "Yes" button.



Note: It is recommended to purchase a RAID CARD BBU battery backup module, to avoid the risk of data loss due to power failure.

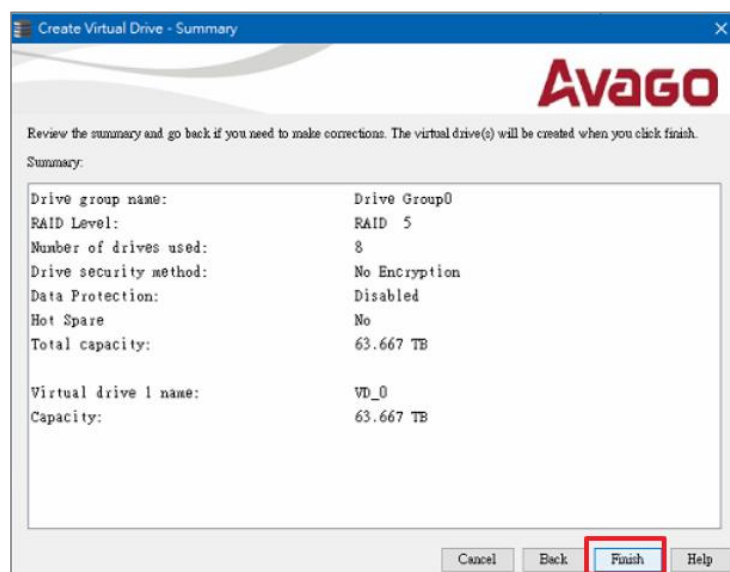
2-8 Virtual Drive Group Setting

The setting is the same as chapter 2-6. Please click the “Next” button.



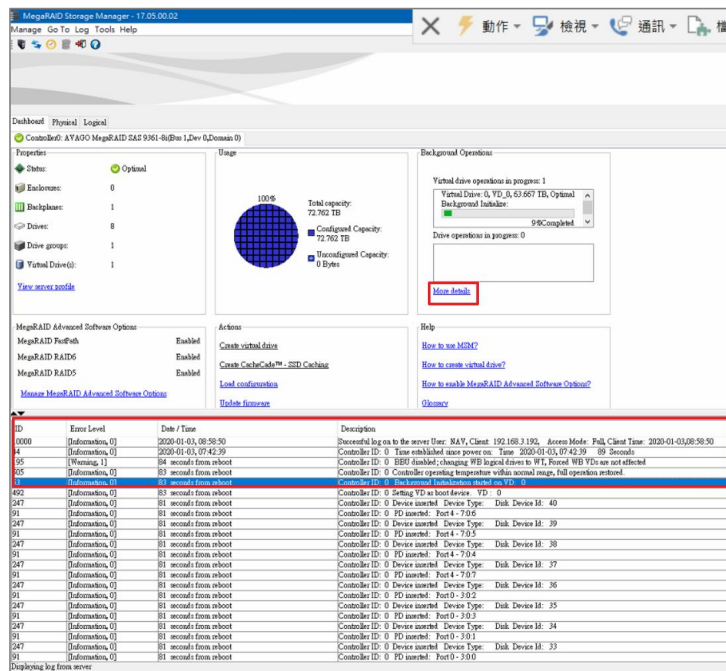
2-9 RAID 5 Created

The RAID system information has been created. Please click the “Finish” button.



Chapter 3 Main Menu Initialization Status Check

Return to the MegaRAID Storage Manager page, the Background Operations will prompt the hard disk initialization status. Even if the computer is restarted, it continued the initialization performed last time.

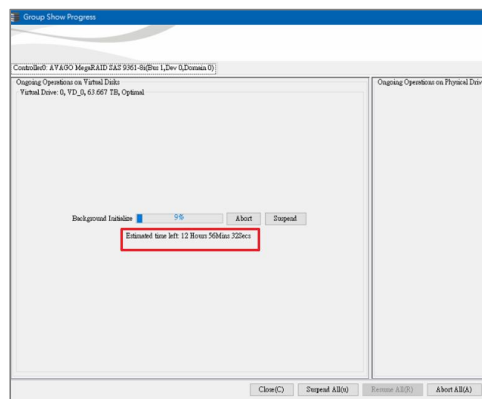


The screenshot shows the MegaRAID Storage Manager interface. The 'Background Operations' section on the right indicates that 'Virtual drive operations in progress: 1' and 'Background Initiation' is at 100%. A 'More details' button is highlighted with a red box. Below this, a table lists system events, including successful log-ons and controller operations.

ID	Error Level	Date / Time	Description
0000	(Information, 0)	2020-01-03, 08:50:50	Successful log on to the server User: NAT, Client: 192.168.3.192, Access Mode: Full, Client Time: 2020-01-03:08:50:50
4	(Information, 0)	2020-01-03, 07:42:39	Controller ID: 0: Term established since power on. Term: 2020-01-03, 07:42:39 - 09 Seconds
05	(Warning, 1)	04 seconds from reboot	Controller ID: 0: BBSF disabled, changing WB logical drives to WFT, Record WB VDs are not affected
05	(Information, 0)	03 seconds from reboot	Controller ID: 0: Controller operating temperature within normal range, full operations restored
18	(Information, 0)	1.8 seconds from reboot	Controller ID: 0: Background Initiation progress bar 100%
492	(Information, 0)	03 seconds from reboot	Controller ID: 0: Setting VD as host device VD: 0
247	(Information, 0)	01 seconds from reboot	Controller ID: 0: Device inserted Device Type: Disk Device ID: 40
91	(Information, 0)	01 seconds from reboot	Controller ID: 0: PD inserted Port 4 - 704
247	(Information, 0)	01 seconds from reboot	Controller ID: 0: Device inserted Device Type: Disk Device ID: 39
91	(Information, 0)	01 seconds from reboot	Controller ID: 0: PD inserted Port 4 - 703
247	(Information, 0)	01 seconds from reboot	Controller ID: 0: Device inserted Device Type: Disk Device ID: 38
91	(Information, 0)	01 seconds from reboot	Controller ID: 0: PD inserted Port 4 - 704
247	(Information, 0)	01 seconds from reboot	Controller ID: 0: Device inserted Device Type: Disk Device ID: 37
91	(Information, 0)	01 seconds from reboot	Controller ID: 0: PD inserted Port 0 - 1025
247	(Information, 0)	01 seconds from reboot	Controller ID: 0: Device inserted Device Type: Disk Device ID: 35
91	(Information, 0)	01 seconds from reboot	Controller ID: 0: PD inserted Port 0 - 103
247	(Information, 0)	01 seconds from reboot	Controller ID: 0: Device inserted Device Type: Disk Device ID: 34
91	(Information, 0)	01 seconds from reboot	Controller ID: 0: PD inserted Port 0 - 101
247	(Information, 0)	01 seconds from reboot	Controller ID: 0: Device inserted Device Type: Disk Device ID: 33
91	(Information, 0)	01 seconds from reboot	Controller ID: 0: PD inserted Port 0 - 100

3-1 More Details Estimated Time

Click the “More details” button to see more information about initialization. For example: Estimated completion time.

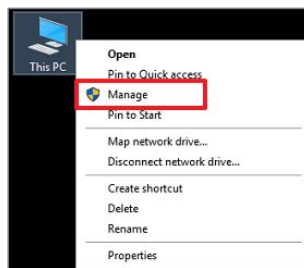


The 'Group Show Progress' dialog box displays the status of background operations. The 'Background Initiation' progress bar is at 9%. A red box highlights the 'Estimated time left 12 Hours 56Mins 32Secs'.

Note: The initialization time may vary depending on the size of the hard drive capacity.

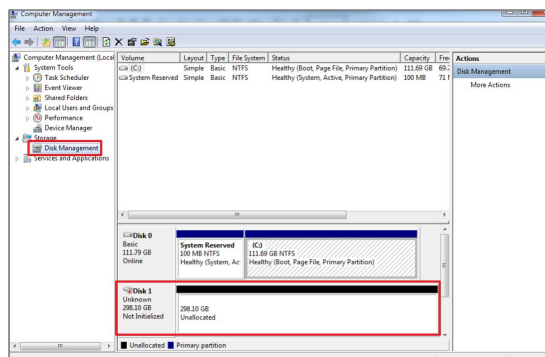
3-2 How to Open Disk Management

Go to My Computer -> Mouse right-click and select "Manage"



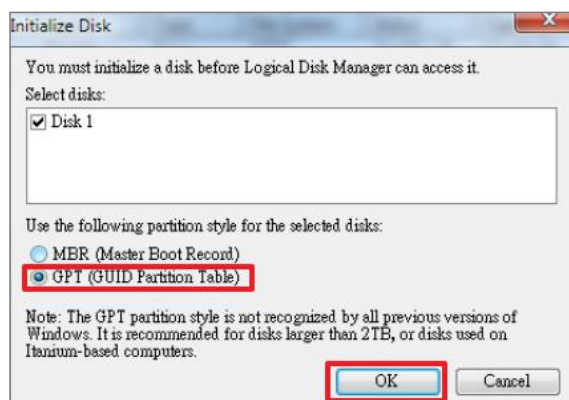
3-3 Disk Management Interface

Computer Management -> under Storage, select the Disk Management.



3-4 Disk Partition Format

Tick on GPT (GUID Partition Table) hard disk partition style, and click the "OK" button.

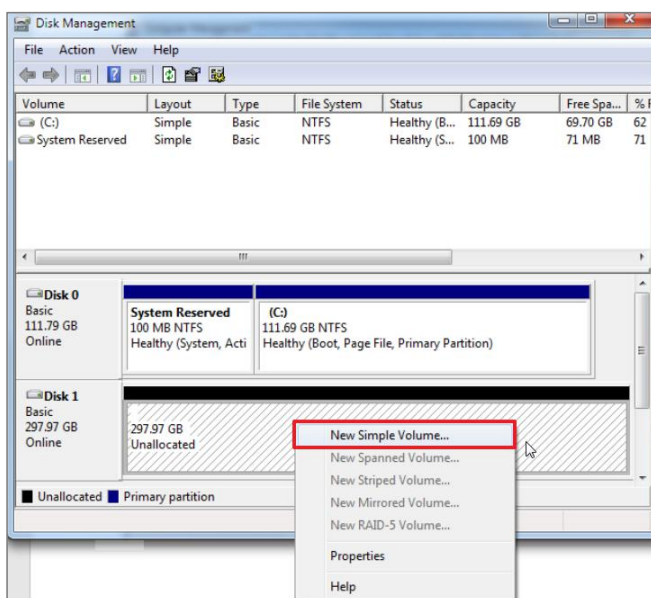


Note: If MBR format is selected, the maximum hard disk space is only 2TB.

Note: GPT format maximum hard disk capacity is 125TB

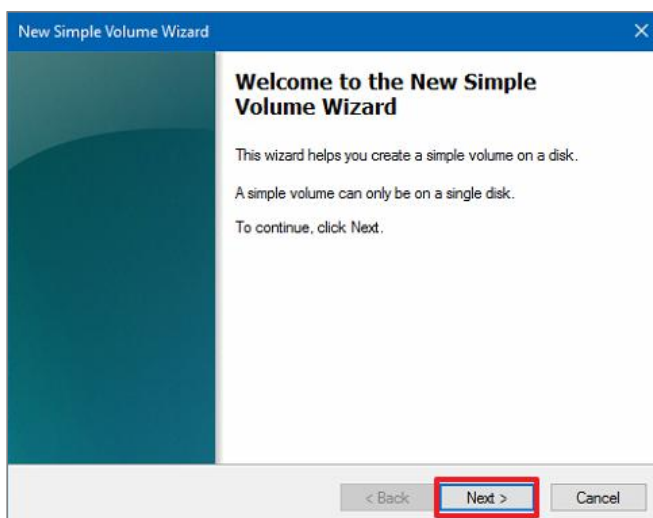
3-5 Add a Disk Sector

Mouse right-click the unallocated space and a menu will appear. Please click on the "New Simple Volume".



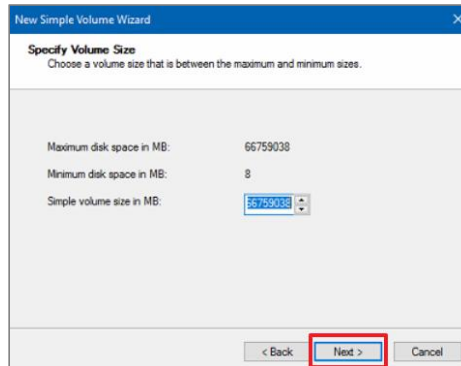
3-6 Disk Wizard

Use the disk wizard, please click the "Next" button.



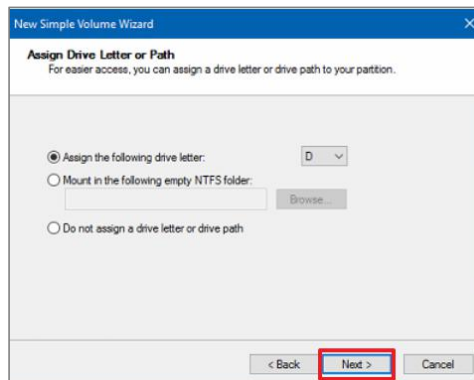
3-7 Disk Capacity

The default capacity is sufficient, and click the “Next” button.



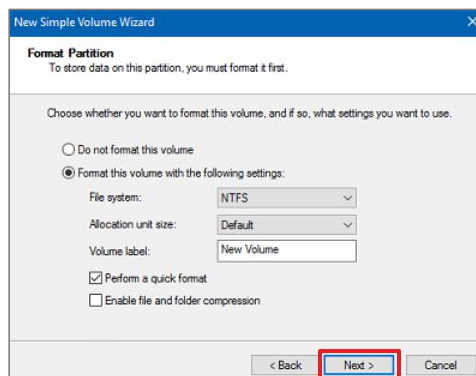
3-8 Create a Disk Sector ID

Specify the disk sector drive letter and click the “Next” button.



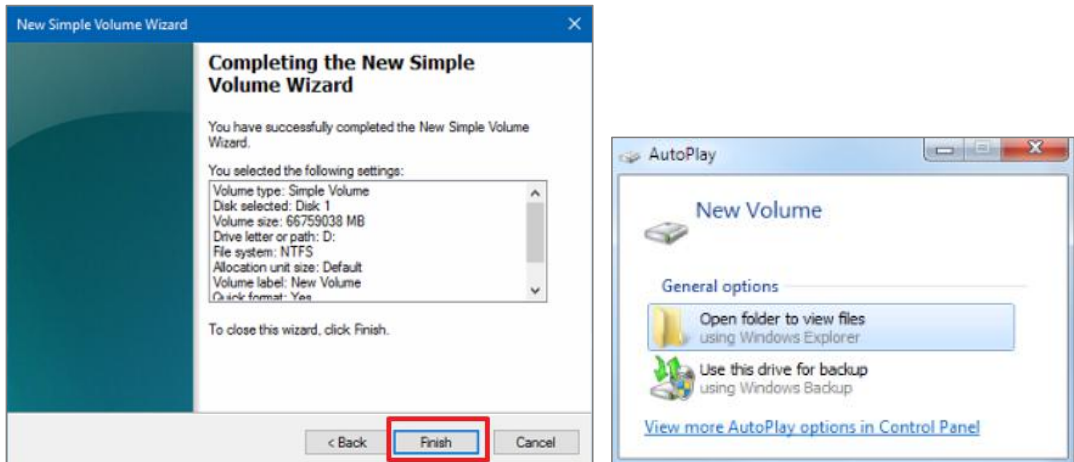
3-9 Sector NETS Format

Ready to format the hard drive and delete the data, please click the “Next” button.



3-10 Disk Wizard Created

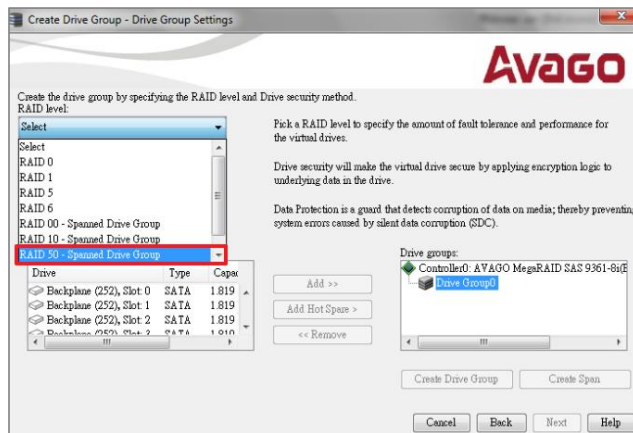
Please click the “Finish” button. After some minutes, the system will automatically eject the formatted hard drive.



Note: Once RAID 5 disk partition is completed, you can run the surveillance recordings.

Chapter 4 RAID 50 Mode

Please select RAID 50 mode (Example: RAID 50).

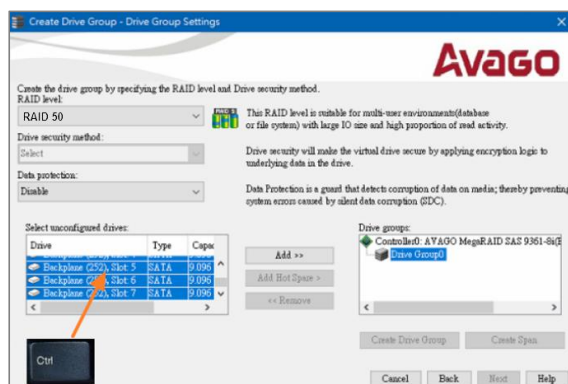


Note: RAID 5 requires at least 3 drives, RAID 50 requires at least 6 drives

Note: For 16-bay and below models, RAID 5 is recommended. For 24-bay and above models, RAID 50 is recommended)

4-1 Add a RAID 50 Hard Drive

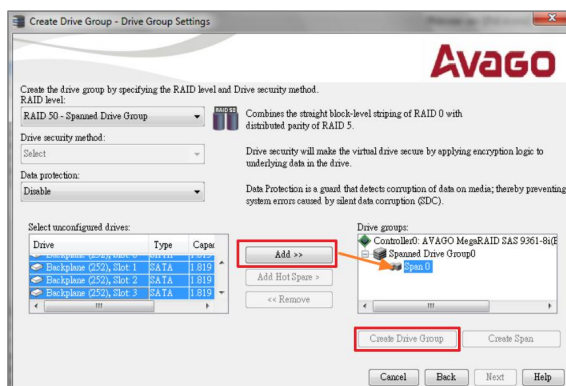
Press and hold the "Ctrl" key on the keyboard, select the RAID 50 hard drive to be added.



Note: The total number of RAID 50 hard drives needs to split a half for Span0 as a group.

4-2 Add a RAID 50 Group

After selecting the number of hard drives, click the "Add" button. Then click the "Create Drive Group" button.



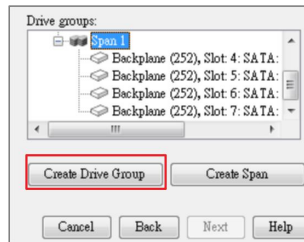
4-3 Create a RAID 50 Group

Please add the remaining hard drives and click the "Add" button. It will show added to Span1.



4-4 Create a Drive Group

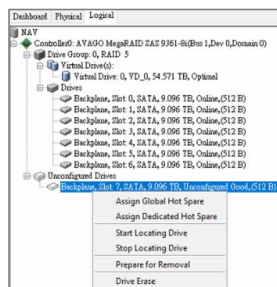
Please click the “Create Drive Group”→ “Next” button. For the rest of the process, please refer to steps 2-6 ~ 2-9.



Chapter 5 Hot Spare Mode

To select the hot spare mode, you have to plan first the number of spare hard drives and RAID groups.

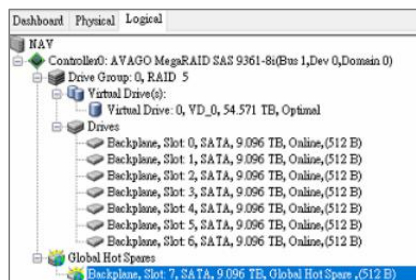
- Global hot spare: When any of the hard disk failed, hot spare will automatically replace the failed hard disk.
- Dedicated hot spare: Assign the hot spare to a specific RAID group. It will automatically replace the failed hard disk in the selected RAID group.



Note: It is recommended to provide 1~2 hot spares on the last hard disk.

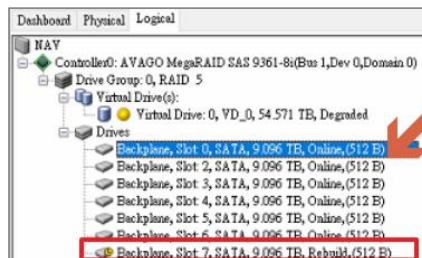
5-1 Global Hot Spare

For example, Global hot spare, please note that in the hot spare mode, the hard drive tray LED is always on.



5-2 Hot Spare Rebuild

When a hard drive fails or cannot be detected, the hot spare hard drive will automatically rebuild data (Example: Rebuild the first one).

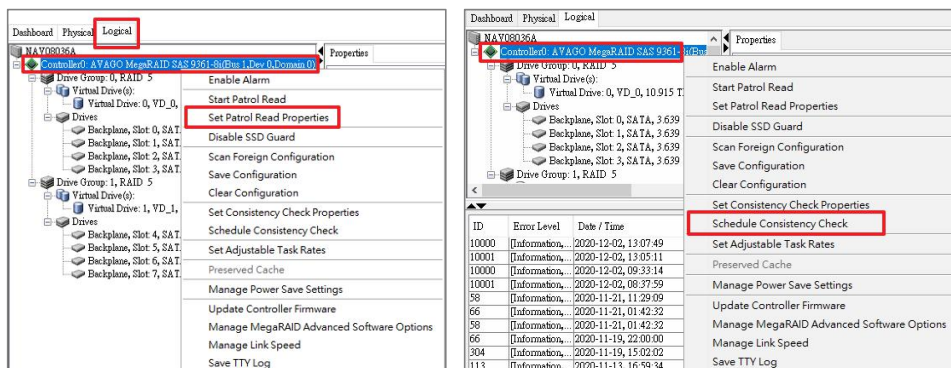


Note: Please wait for the rebuild to complete before putting other hard drives online.

Chapter 6 Automatic Disk Check

Click on Logical tab, mouse right-click on the Controller RAID CARD and select the settings.

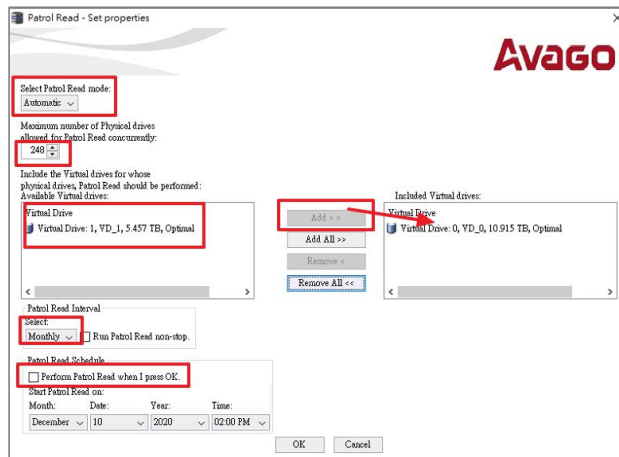
- Set Patrol Read Properties
- Schedule Consistency Check



6-1 Patrol Read Schedule Settings

- Select Patrol Read Mode : Automatic
- Maximum number of Physical drives allowed for Patrol Read concurrently: Default value 255 is recommended.
- Patrol Read Interval : Monthly
- Uncheck the Run Patrol Read non-stop and customize the schedule time. The 10th of each month is recommended.

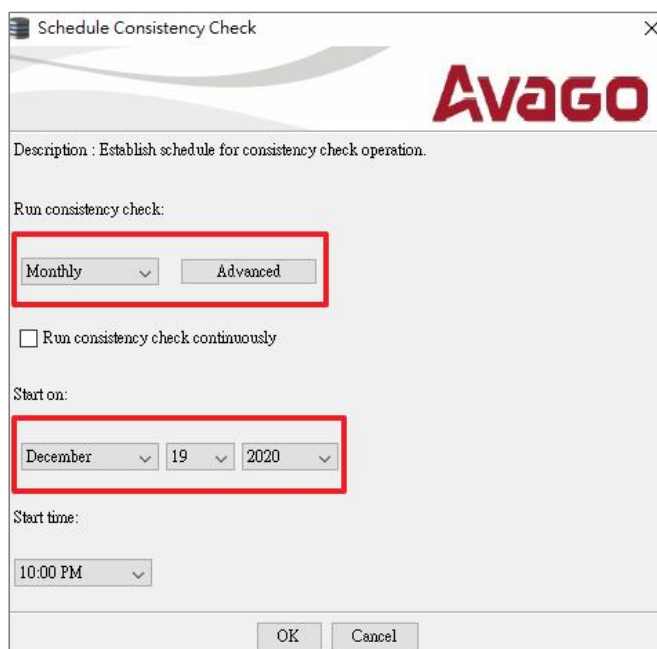
Note: There are two types of disk check, Patrol Read and Consistency Check. It is recommended to do only one type of disk check each month, to prevent too long disk check time and result to crash.



6-2 Consistency Check Schedule Settings

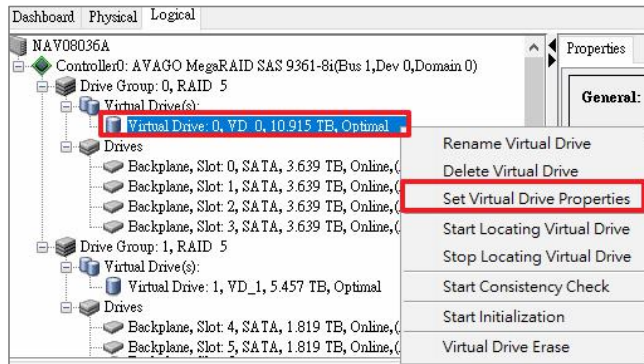
- Run consistency check: Monthly
- Start on: It is recommended to do only one type each month to prevent too long check time and result to crash.

NOTE: There are two types of disk check, Patrol Read and Consistency Check. It is recommended to do only one type of disk check each month, to prevent too long disk check time and result to crash.



Chapter 7 Write Optimization

1. Click on Logical tab
2. Move the mouse to **Virtual Drive:0 · VD_0**
3. Set Virtual Drive Properties



7-1 Write Settings

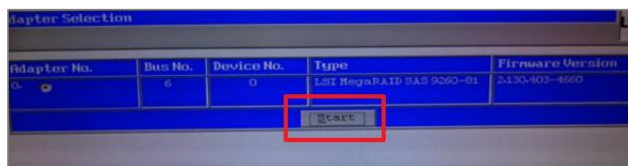
1. Write Policy: Set to Always Write Back
2. Read Policy: Set to Always Read Ahead
3. Disk Cache Policy:
 - If the host environment has a UPS uninterruptible power supply UPS system, please set: Enabled.
 - If the host environment has no UPS uninterruptible power supply UPS system, please set: Unchanged or Disabled.



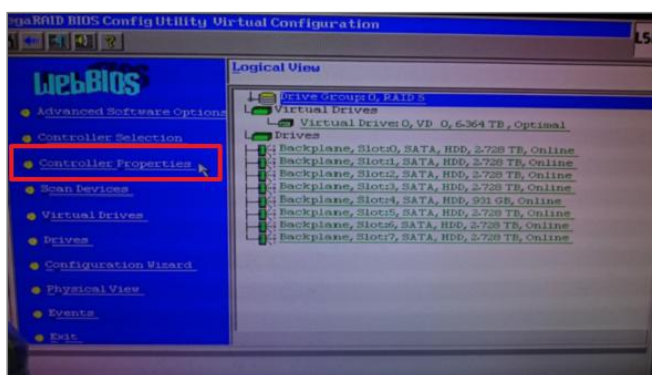
Chapter 8 RAIDWebBIOS

When the MegaRAID settings cannot be saved or the version cannot be upgraded, you can set it through the WebBIOS first.

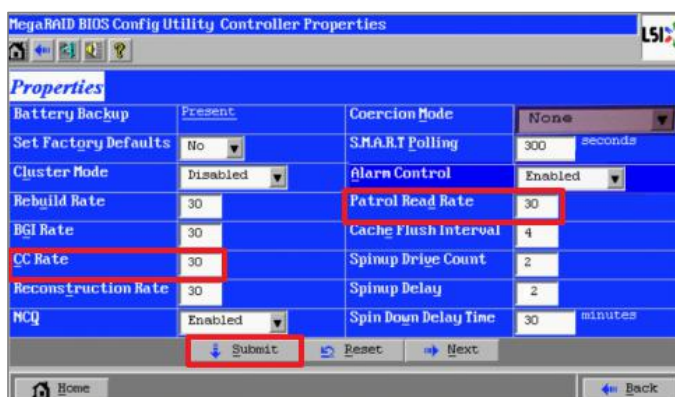
- Turn on the computer, then press Ctrl + H on the keyboard, until you enter the Web Bios.
- After entering the Web BIOS, click the “Start” button to enter the RAID configuration.



1. Click on “Controller Properties”



2. Please set the CC Rate and Patrol Read Rate to 10%, and click on Submit button to apply this page setting. Then, click on Next button.

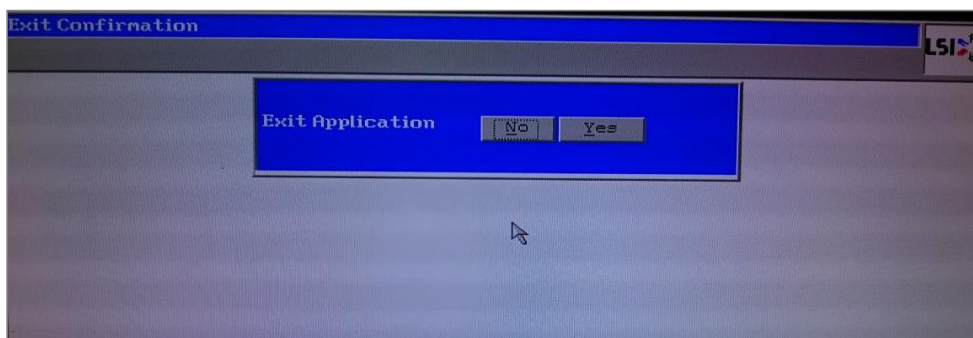


8-1 Exit the RAID WebBIOS

To Exit the RAID WebBIOS, press the ESC key on the keyboard or press the interface



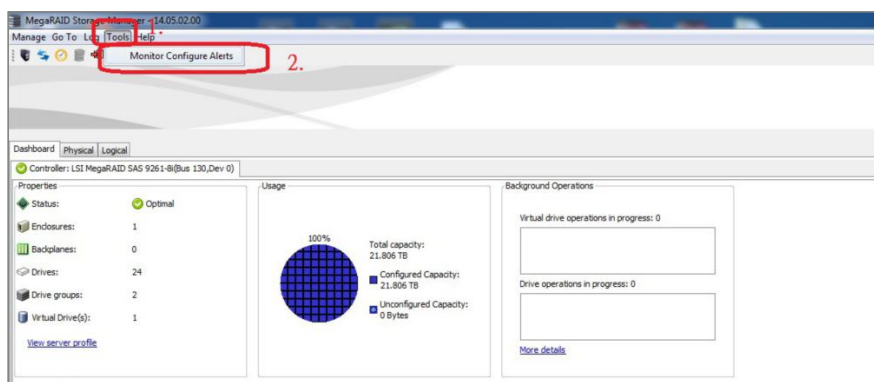
to exit the page.



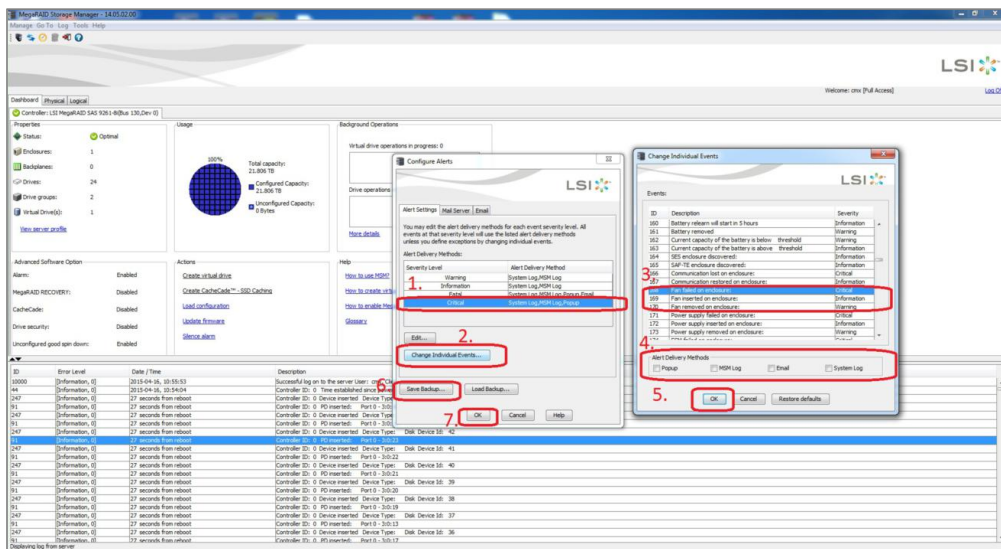
Chapter 9 Configure Alerts

In some countries, when the device restarts due to power factors, but the ambient temperature is within the normal range, the MegaRAID will automatically trigger alert of abnormal temperature. However, users do not want to be alerted every time. The following can be done:

1. Click on Tools tab
2. Click on Monitor Configure Alerts



1. From the log or fan warning alert level, displays: Critical level.
2. Change the individual events in the Alert Settings.
3. Find [ID168:Fan failed on endosure](#)
4. Under Alert Delivery Method, uncheck the boxes of [Popup](#), [MSM log](#), [Email](#), [System Log](#)
5. Click the "OK" button to confirm the settings.
6. The Backup Configure Alerts file can be saved to synchronize the settings to another device.
7. Click the "OK" button to complete the settings.



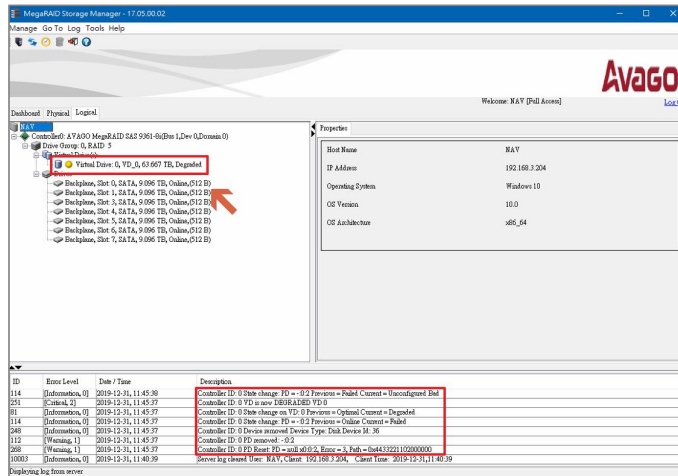
Chapter 10 Solution to Accidentally Touch the RAID Hard Drive Tray

Assume the RAID system is set up, and the hard drive tray is accidentally touched triggering dropped hard drive warning. Please follow the steps below:

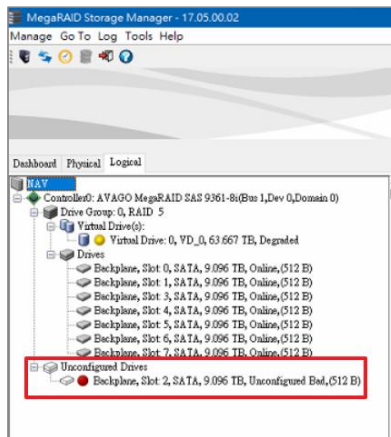
Example: The system alert "Degraded". The log below shows the error started at 12/31 11:45, and there was no error prior.

Log: State Change PD= -:0:2 Previous = Online Current = Failed

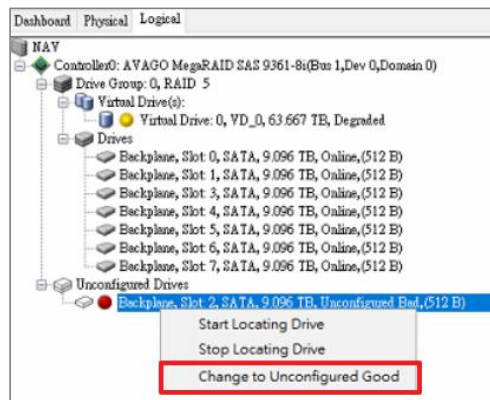
At this time, the number of hard disks is one less, and no hard disk is detected inside or outside the tree diagram. It should be just an accidental touch that caused no power.



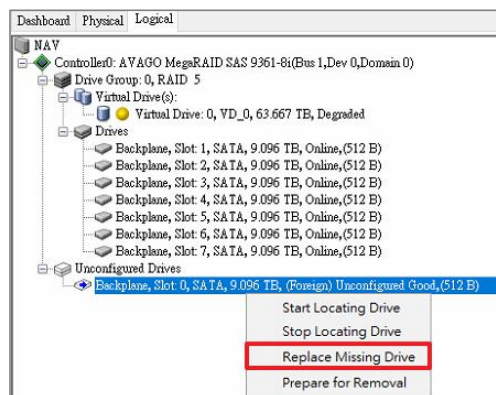
1. After the hard disk is inserted back, it will appear on the outer layer of the tree diagram and the red indicator is lit.



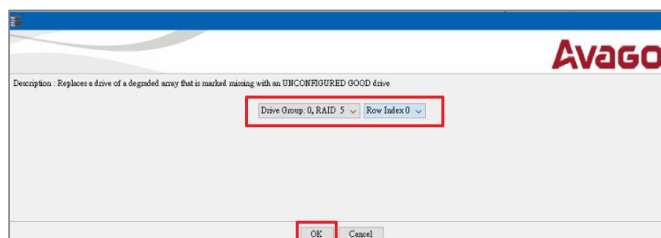
- To change the hard disk red state (Unconfigured Bad), mouse right-click and select "Change to Unconfigured Good".



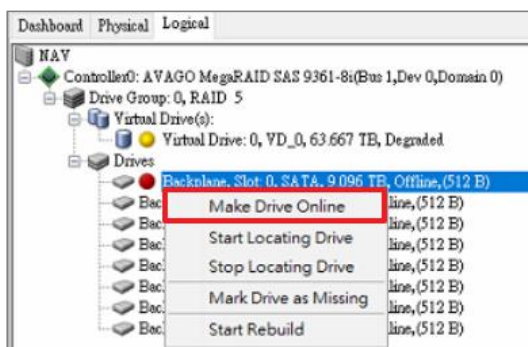
- To change the hard disk blue state (Foreign), mouse right-click and select "Replace Missing Drive".



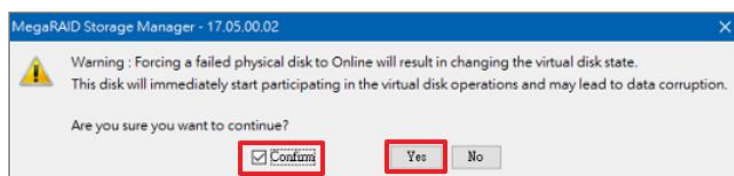
- Confirm for which RAID and Drive Group the replacement hard drive. (If there is only one group RAID 5, click the "OK" button right away.)



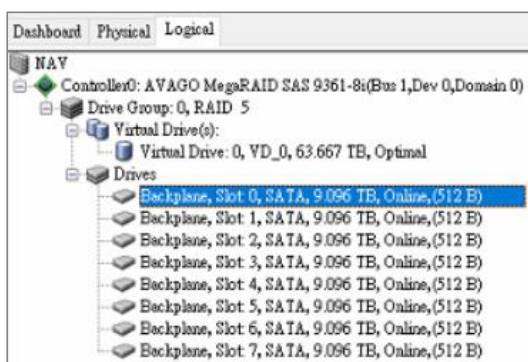
5. The hard drive is restored to the tree diagram group, mouse right-click and select the "Make Drive Online"



6. Confirm if you agree hard drive to go Online. (Here, it must be confirmed the hard drive has no write or read errors to go online.)



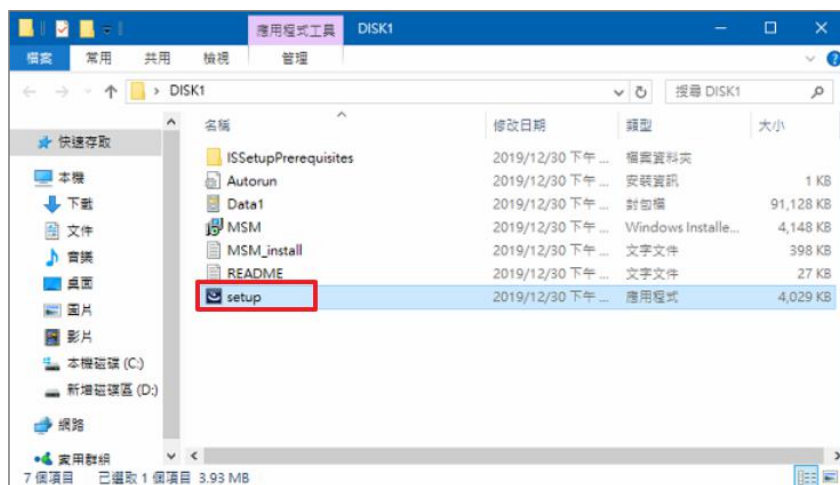
7. The hard drive is back to online status.



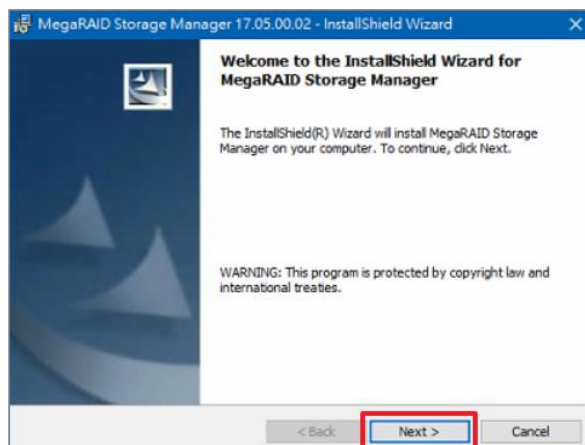
Chapter 11 Mega RAID Monitoring Software and Firmware Upgrade Procedure

MegaRAID storage manager corrects misjudged messages and supports new hard drives. It is recommended to upgrade to released version 17.05.00.02 or above.

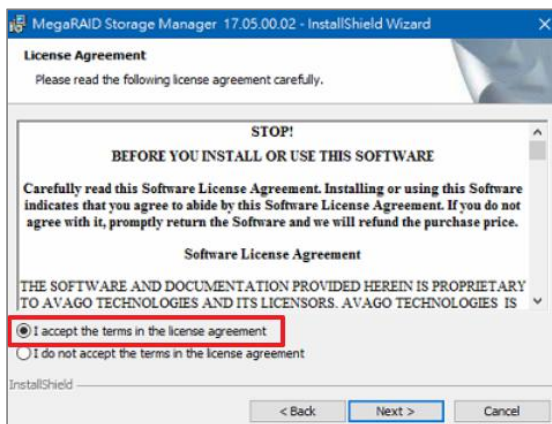
1. First, close the NAV software and then, click the "setup" button to install the MegaRAID main program.



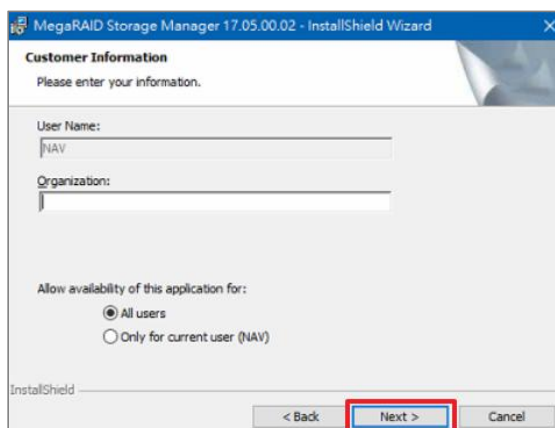
2. Please click the "Next" button.



3. Tick on "I accept the terms in the license agreement" and then, click the "Next" button.



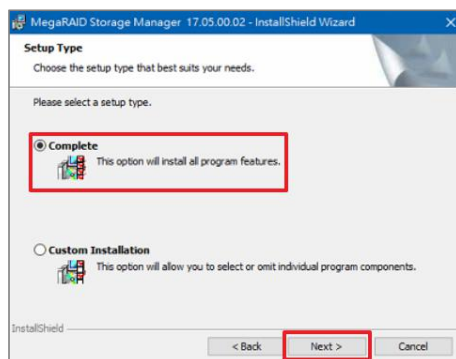
4. Directly click the "Next" button.



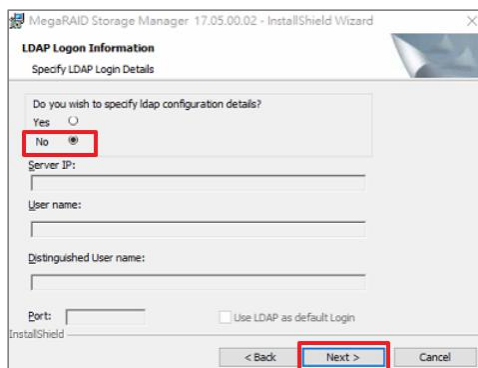
5. Do not change the installation destination folder, proceed to click the "Next" button.



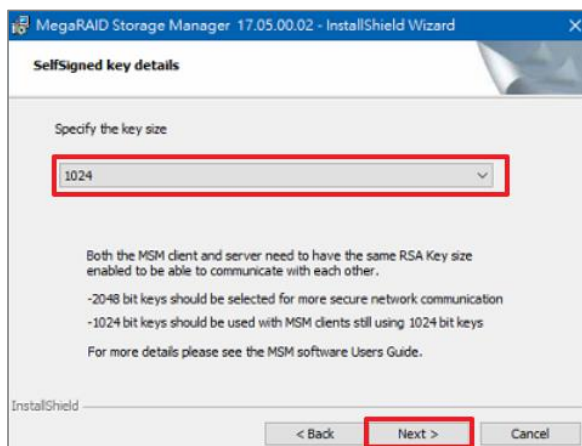
6. Select the default setup type “Complete”, and click the "Next" button.



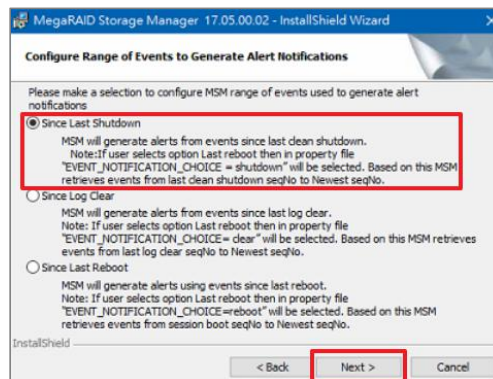
7. Do you wish to specify ldap configuration details? Please tick on “No”, and click on “Next” button.



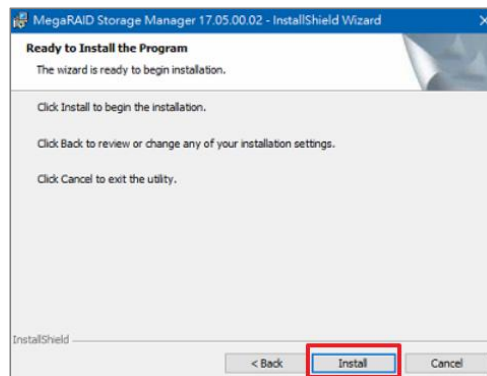
8. As the SafeStore function is no longer supported, please adjust the key size to 1024 and click the “Next” button.



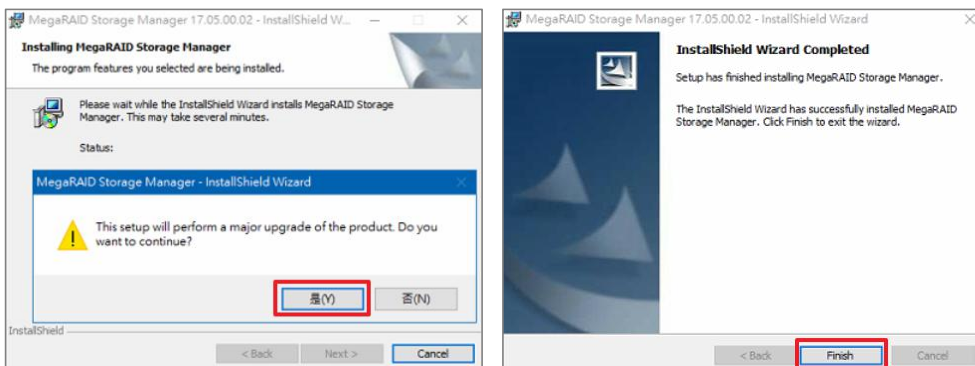
9. Please tick the **"Since Last Shutdown"**, and click the **"Next"** button.



10. After confirming all is okay, click the **"Next"** button.



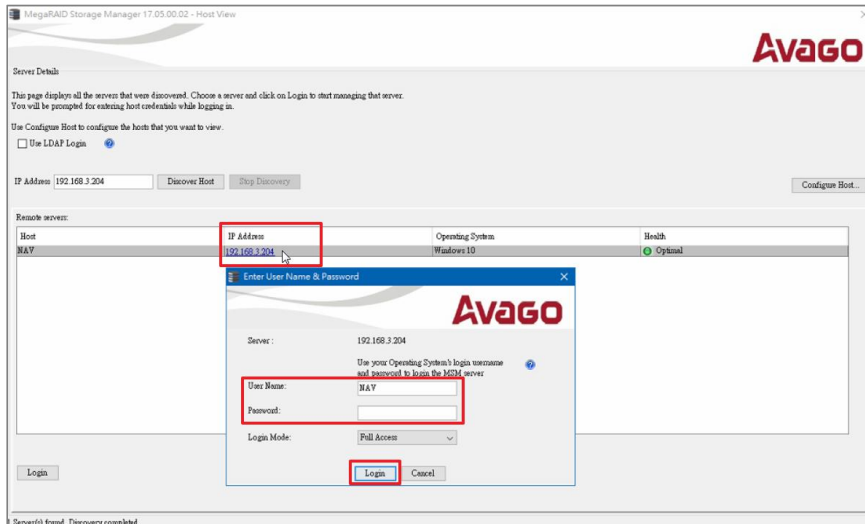
11. After agreeing to install the storage manager upgrade, please click the **"Finish"** button. Then, restart the computer.



11-1 Upgrade LSI RAID CARD Firmware

It is recommended to regularly update the RAID CARD firmware to facilitate the support of new hard drives.

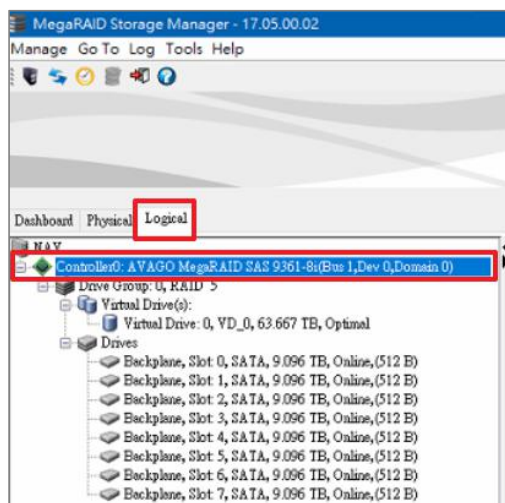
- Turn on the MegaRAID storage manager, and click the selected IP Address to pop-up the login dialog box. Enter a user name and password and click the Login button.



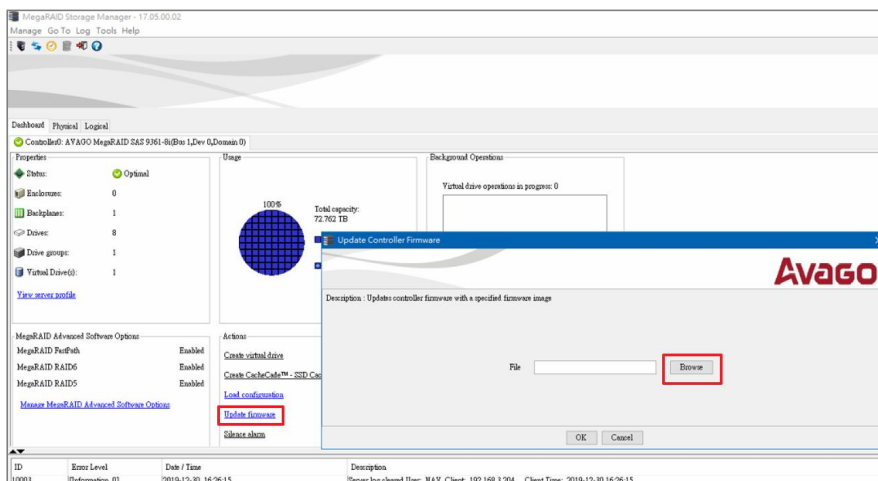
- First, please confirm the LSI RAID CARD model. The firmware of different models cannot be shared with each other. Please contact the FAE support team for relevant firmware.

Example: LSI RAID CARD 9260-4i/8i

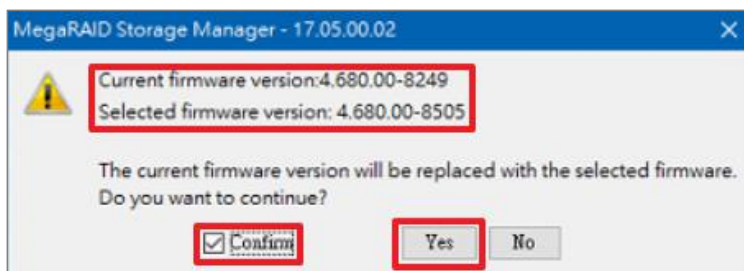
Example: LSI RAID CARD 9361-8i



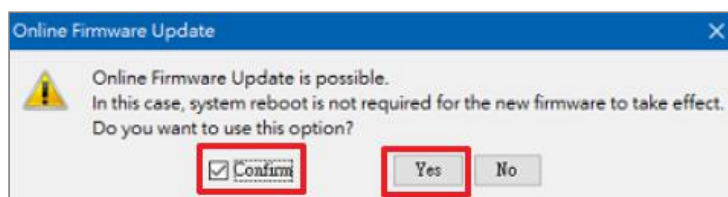
1. Please click on "Update firmware", browse the firmware file directory and install the specified firmware.



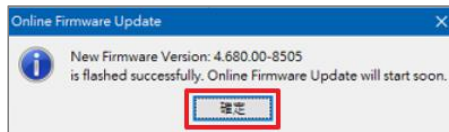
2. Please check the "Confirm" box if the selected firmware version is correct, and click the "Yes" button.



3. The system provides a reminder that online firmware update is possible. And indicates a system reboot is not required for the new firmware to take effect. Please disregard the reminder and click the "Yes" button.



4. After the firmware update is complete, please click the “Confirm” button.



Note:

- Note on firmware: The RAID used by different agents may be an OEM version, such as Dell or Advantech. For detailed firmware and drivers, please contact the relevant agents.