

Important Notice

RAID System Monitoring on vSphere Client in VMware vSphere 5 or later

This document includes important notice for using vSphere Client of VMware vSphere 5 for monitoring the statuses of RAID Controller.

Please read carefully and follow the instructions when you use your system.

The following symptoms occur when you monitor RAID Controllers using vSphere Client with LSI SMI-S provider on VMware ESXi. All symptoms are just cosmetic problems and there are no problem in product operation and quality.

* On this document, "VMware ESXi" means hypervisor of VMware ESXi 5 or later.

RAID Controller with battery

The status is "Normal" when the battery is connected without fails. The value of Battery Status in the Reading Column is "Fully Charged" or "Unknown" depending on the RAID Controller.

- When Battery Status is Fully Charged

The screenshot shows the vSphere Client interface with the 'Configuration' tab selected. Under 'Hardware', the 'Storage' section is expanded, showing a list of sensors. A red box highlights the 'Battery 753 on Controller 500605B000A8F314' sensor. The 'Status' column shows a green checkmark and 'Normal', and the 'Reading' column shows 'Battery Status : Fully Charged'.

Sensor	Status	Reading
NEC Express5800/R140b-4 [N8100-1601]	Normal	
Processors	Normal	
Memory	Normal	
Storage	Normal	
Controller 500605B000A8F314 (LSI MegaRAID SAS 9264-8)	Normal	
Battery 753 on Controller 500605B000A8F314	Normal	Battery Status : Fully Charged
Drive 252_0 on controller 500605B000A8F314 Fw: N007 - ONLINE	Normal	
Drive 252_1 on controller 500605B000A8F314 Fw: N005 - ONLINE	Normal	
Drive 252_3 on controller 500605B000A8F314 Fw: N007 - ONLINE	Normal	
Drive 252_4 on controller 500605B000A8F314 Fw: N007 - ONLINE	Normal	
Drive 252_5 on controller 500605B000A8F314 Fw: N007 - ONLINE	Normal	
RAID 1 StorageVolume Logical Volume 500605B000A8F314_0 on controller 500605B...	Normal	

- When Battery Status is Unknown

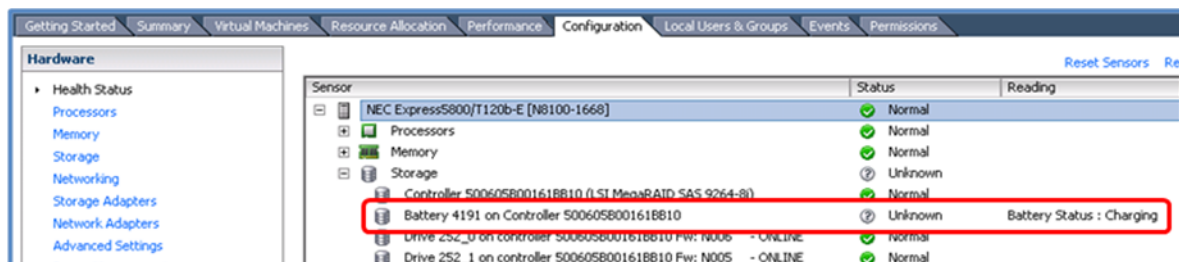
The screenshot shows the vSphere Client interface with the 'Configuration' tab selected. Under 'Hardware', the 'Storage' section is expanded, showing a list of sensors. A red box highlights the 'Battery 2718 on Controller 500605B00319C0E0' sensor. The 'Status' column shows a green checkmark and 'Normal', and the 'Reading' column shows 'Battery Status : Unknown'.

Sensor	Status	Reading
NEC Express5800/R120d-2M [N8100-1793F]	Normal	
Processors	Normal	
Memory	Normal	
Storage	Normal	
Controller 500605B00319C0E0 (LSI MegaRAID SAS 9267-8)	Normal	
Battery 2718 on Controller 500605B00319C0E0	Normal	Battery Status : Unknown
Drive 252_10 on controller 500605B00319C0E0 Fw: N003 - ONLINE	Normal	
Drive 252_13 on controller 500605B00319C0E0 Fw: N003 - ONLINE	Normal	
Drive 252_12 on controller 500605B00319C0E0 Fw: N003 - ONLINE	Normal	
Drive 252_65 on controller 500605B00319C0E0 Fw: 0003 - ONLINE	Normal	
Drive 252_66 on controller 500605B00319C0E0 Fw: 0003 - ONLINE	Normal	
RAID 1 StorageVolume Logical Volume 500605B00319C0E0_0 on controller 500605B00319C...	Normal	
RAID 5 StorageVolume Logical Volume 500605B00319C0E0_1 on controller 500605B00319C...	Normal	

The image above indicates there is no problem in the battery. The Battery Status in the Reading column is Unknown while the Status is Normal. This is the same as Fully Charged.

During battery refreshing

The status of the battery indicates “Unknown” on the Hardware Health Status window.



If the value of the Battery Status is Unknown in the Reading column when the battery is Fully Charged, the Battery Status may be also Unknown during battery refreshing.

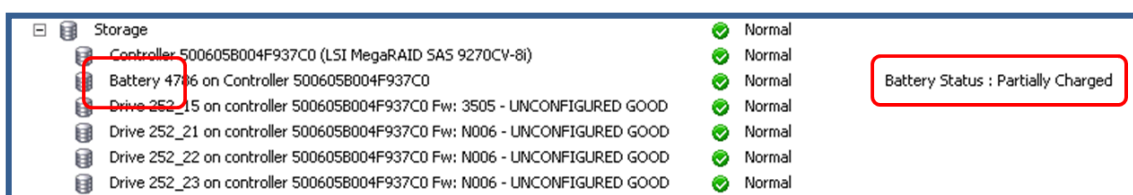
You can check the battery status in the Status column and the value of Battery Status in the Reading column.

Status of Battery	Status	Value of “Battery Status”
Fully Charged	Normal	Fully Charged or Unknown
Discharge in Progress	Unknown	Partially Charged or Unknown
Low Voltage	Unknown	Critical or Unknown
Charge in Progress	Unknown	Charging or Unknown

The battery refresh completes in 24 hours and the Status becomes Normal. If the Status is left “Unknown” for a long time, the battery may be degraded. Contact your NEC sales/maintenance person.

RAID Controller with Flash Backup Unit

The status is “Normal” and the label in the Sensor Column is “Battery” when the Flash Backup Unit is connected without fails. The value of Battery Status in the Reading Column is “Partially Charged” even if the Flash Backup Unit is fully charged.



You can check the Flash Backup Unit status in the Status column and the value of Battery Status in the Reading column.

Status of Flash Backup Unit	Status	Value of “Battery Status”
Fully Charged	Normal	Partially Charged
Discharge in Progress	Unknown	Partially Charged
Low Voltage	Unknown	Critical
Charge in Progress	Unknown	Charging

Getting latest status of the battery and Flash Backup Unit

The battery and Flash Backup Unit status is not refreshed by [Reset Sensors] and [Refresh].

If you want to get latest status of the battery and Flash Backup Unit, close vSphere Client and restart it.

When a problem occurs in Physical Device

The label of Physical Device indicates “UNDEFINED” and/or the status becomes “Warning” on the Hardware Health Status window. Either of the following symptoms occurs in this case.

- Physical Device fails
- Physical Device has S.M.A.R.T. error

You can identify which case occurs by confirming the status of the Logical Drive. Check if the status of the Logical Drive is Warning.

(1) When the status of the Logical Drive is Warning

The Logical Drive is no longer redundant because the Physical Device fails. Replace the failed Physical Device. The screen when the Physical Device fails may be as shown below.

Storage		Warning
Controller 500605B000A8F314 (LSI MegaRAID SAS 9264-8i)		Normal
Battery 753 on Controller 500605B000A8F314		Normal
Drive 252_0 on controller 500605B000A8F314 Fw: N007 - UNDEFINED		Warning
Drive 252_1 on controller 500605B000A8F314 Fw: N005 - ONLINE		Normal
Drive 252_3 on controller 500605B000A8F314 Fw: N007 - ONLINE		Normal
Drive 252_4 on controller 500605B000A8F314 Fw: N007 - ONLINE		Normal
Drive 252_5 on controller 500605B000A8F314 Fw: N007 - ONLINE		Normal
Drive 252_2 on controller 500605B000A8F314 Fw: N007 - UNCONFIGURED GOOD		Normal
RAID 1 StorageVolume Logical Volume 500605B000A8F314_0 on controller 500605B000A8F314, Drives(252_0,252_1) - DEGRADED		Warning
RAID 5 StorageVolume Logical Volume 500605B000A8F314_1 on controller 500605B000A8F314, Drives(252_3,252_4,252_5) - OPTIMAL		Normal

The label of the failed Physical Device (Drive 252_0) is “UNDEFINED” and the status becomes “Warning”. The status of the Logical Drive (Logical Volume which includes Drive 252_0) also becomes “Warning”.

(2) When the status of the Logical Drive is Normal

The Physical Device does not fail but has S.M.A.R.T. error. This may cause a Physical Device error in the future, so replace the Physical Device. The screen when S.M.A.R.T. error occurs may be as shown below.

Storage		Warning
Controller 500605B000A8F314 (LSI MegaRAID SAS 9264-8i)		Normal
Battery 753 on Controller 500605B000A8F314		Normal
Drive 252_0 on controller 500605B000A8F314 Fw: N007 - ONLINE		Normal
Drive 252_2 on controller 500605B000A8F314 Fw: N007 - ONLINE		Normal
Drive 252_1 on controller 500605B000A8F314 Fw: N005 - ONLINE		Normal
Drive 252_3 on controller 500605B000A8F314 Fw: N007 - ONLINE		Normal
Drive 252_4 on controller 500605B000A8F314 Fw: N005 - UNDEFINED		Warning
Drive 252_5 on controller 500605B000A8F314 Fw: N007 - ONLINE		Normal
RAID 1 StorageVolume Logical Volume 500605B000A8F314_0 on controller 500605B000A8F314, Drives(252_0,252_1) - OPTIMAL		Normal
RAID 1 StorageVolume Logical Volume 500605B000A8F314_1 on controller 500605B000A8F314, Drives(252_2,252_3) - OPTIMAL		Normal
RAID 1 StorageVolume Logical Volume 500605B000A8F314_2 on controller 500605B000A8F314, Drives(252_4,252_5) - OPTIMAL		Normal

The label of the Physical Device with S.M.A.R.T. error (Drive 252_4) indicates “UNDEFINED” and the status becomes “Warning”. The status of the Logical Drive (Logical Volume which includes Drive 252_4) remains as “Normal”.

Identifying Physical Device which is a part of Logical Drive

The label of Online Physical Device may indicate “UNCONFIGURED GOOD” on the Hardware Health Status window. And a part of the label of Logical Drive is dropped. For these reasons, you cannot Identify Physical Device which is a part of Logical Drive from vSphere Client without occurring problem.

Identifying Physical Device which is a part of Logical Drive without when a problem occurs in Physical Device, Start the Offline RAID Utility to identify the Physical Device.

Sensor	Status
Drive 252_7 on controller 500605B003A9DF30Fw: 0000108 - UNCONFIGURED GOOD	Normal
Drive 252_26 on controller 500605B003A9DF30Fw: 0000061 - UNCONFIGURED GOOD	Normal
Drive 252_33 on controller 500605B003A9DF30Fw: 0000000 - UNCONFIGURED GOOD	Normal
Drive 252_34 on controller 500605B003A9DF30Fw: 0000000 - UNCONFIGURED GOOD	Normal
Drive 252_35 on controller 500605B003A9DF30Fw: 0000000 - UNCONFIGURED GOOD	Normal
Drive 252_36 on controller 500605B003A9DF30Fw: 0000000 - UNCONFIGURED GOOD	Normal
Cache CadeRAID 0 StorageVolume Logical Volume500605B003A9DF30_0 on controller500605B003A9DF30, Drives(- OPTIMAL	Normal
RAID 1StorageVolume LogicalVolume 500605B003A9DF30_1 on controller500605B003A9DF30, Drives(- OPTIMAL	Normal
RAID 1StorageVolume LogicalVolume 500605B003A9DF30_2 on controller500605B003A9DF30, Drives(- OPTIMAL	Normal
RAID 1StorageVolume LogicalVolume 500605B003A9DF30_3 on controller500605B003A9DF30, Drives(- OPTIMAL	Normal
RAID 1StorageVolume LogicalVolume 500605B003A9DF30_4 on controller500605B003A9DF30, Drives(- OPTIMAL	Normal

Environment where many Physical Devices or Logical Drives

When you connect the server using vSphere Client immediately after restarting VMware ESXi, there may be the case that no storage node is displayed on the Health Status window. The symptom occurs because a lot of processes are being activated immediately after VMware ESXi start.

In this case, check the display of vSphere Client some time later. The more the number of the Physical Devices or Logical Drives are, the longer the time when all the storage nodes are successfully displayed.

When a RAID Controller problem occurs on environment where more than one RAID Controller is connected

Shut down VMware ESXi if the status of the RAID Controller is “Alert” or “Warning” on the Hardware Health Status window.

Example when the status of RAID Controller is “Alert”

Sensor	Status
NEC Express5800/iR120a-1E [N8100-1575Y]	Alert
Processors	Normal
Memory	Normal
Storage	Alert
Controller 500605B001618020 (LSI MegaRAID SAS 9264-8i)	Alert
Battery 753 on Controller 500605B001618020	Normal

Example when the status of RAID Controller is “Warning”

Sensor	Status
NEC Express5800/iR120a-1E [N8100-1575Y]	Warning
Processors	Normal
Memory	Normal
Storage	Warning
Controller 500605B001618020 (LSI MegaRAID SAS 9264-8i)	Warning
Battery 753 on Controller 500605B001618020	Normal

Start the Offline RAID Utility to identify the RAID Controller that has a problem. Replace the RAID Controller if required.

Connection between vSphere Client and VMware ESXi

VMware ESXi may not send information to vSphere Client if the RAID System configuration changes frequently in a short period of time, for example, if a physical device is removed and inserted at intervals of approximately 90 seconds. In this case, please wait for 10 minutes to recovery from the communication failure or restart the VMware ESXi Management Agent. You can restart the Management Agent in the following procedure.

[How to restart the Management Agents]

1. Press F2 on the console of VMware ESXi and log in to the management window.
2. Select Troubleshooting Options and press Enter.
3. Select Restart Management Agents and press Enter.
4. Press F1 on the confirmation windows to restart Management Agents.

About Screenshots on each item

Screenshots on each item may not use latest LSI SMI-S Provider. Screen display may be different without notable points that enclosing red square.

NEC