
How to diagnose hard drive broken status in SMR?

Application Notes

Version <1.0>

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1. Objective

The objective of this document is to educate user of how to diagnose which hard drive is broken in RAID once the SMR in the RAID failure mode.

2. How to diagnose which hard drive is broken in RAID

In this application notes, we will use one drive failure to be our example.

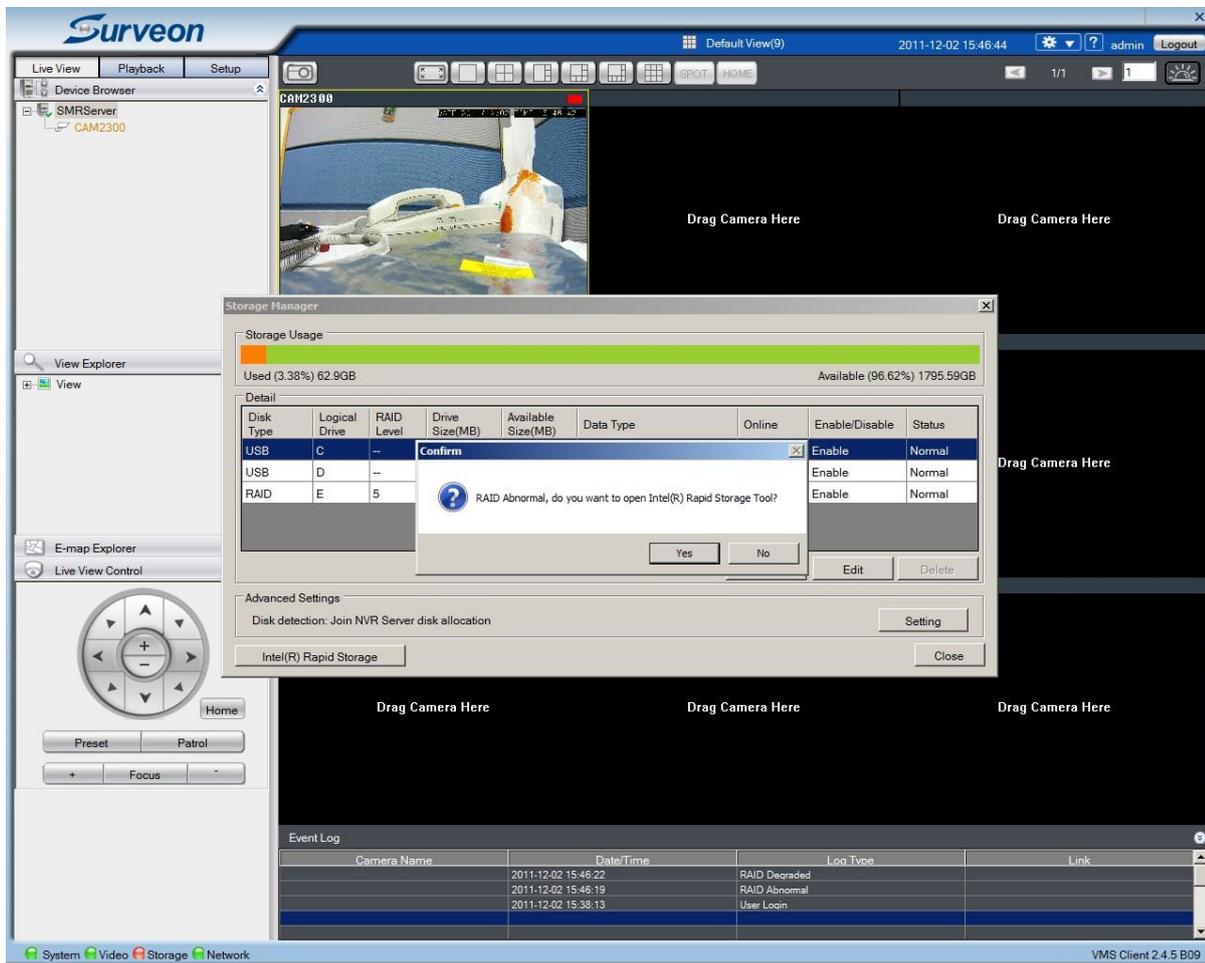
2.1 Hard disk is broken

The hard disk LED will blink in red.



2.2 Open Intel® Rapid Storage Tool

Then, there is a window pop up to notify user that RAID abnormal, and do you want to open Intel Rapid Storage Tool? Click Yes to open the diagnose tool.



As we can see from the figure below, hard disk 3 is missing and the RAID is degraded. Therefore, user can diagnose which hard drive have problem by entering into this tool.

The screenshot displays the Intel Rapid Storage Technology (IRST) management interface. The main window is titled "Current Status" and "Storage System View".

Current Status: A warning icon indicates that the system is reporting one or more events, and data may be at risk. Below this, the "Manage" section shows a red-bordered box containing the following information for "Array_0000":

- bootos: Degraded
Details: Fix any problems reported on the array disks, or rebuild the volume to a new disk.
- volume3: Degraded
Details: Fix any problems reported on the array disks, or rebuild the volume to a new disk.
- Disk on port Unknown: Missing

Storage System View: This section shows the RAID configuration for "Array_0000". It lists three volumes:

- bootos: 932 GB, Type: RAID 5, 8 GB
- volume3: 932 GB, Type: RAID 5, 1.8 TB
- 0 GB (highlighted with a red box, indicating a degraded or failed state)

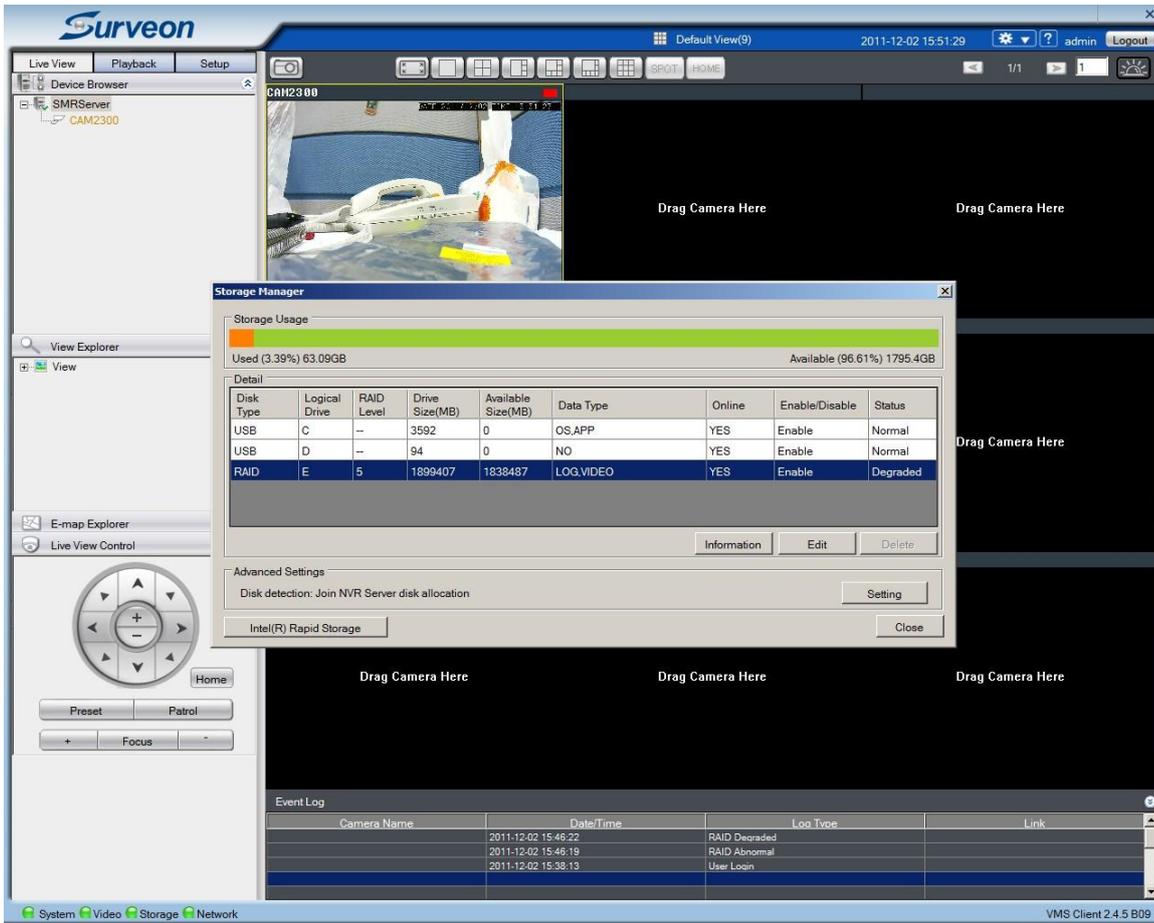
Below the volumes, there are five empty ports listed: "Internal empty port 2", "Internal empty port 3", "Internal empty port 4", and "External empty port 5".

Event Log: A table at the bottom of the interface shows the following events:

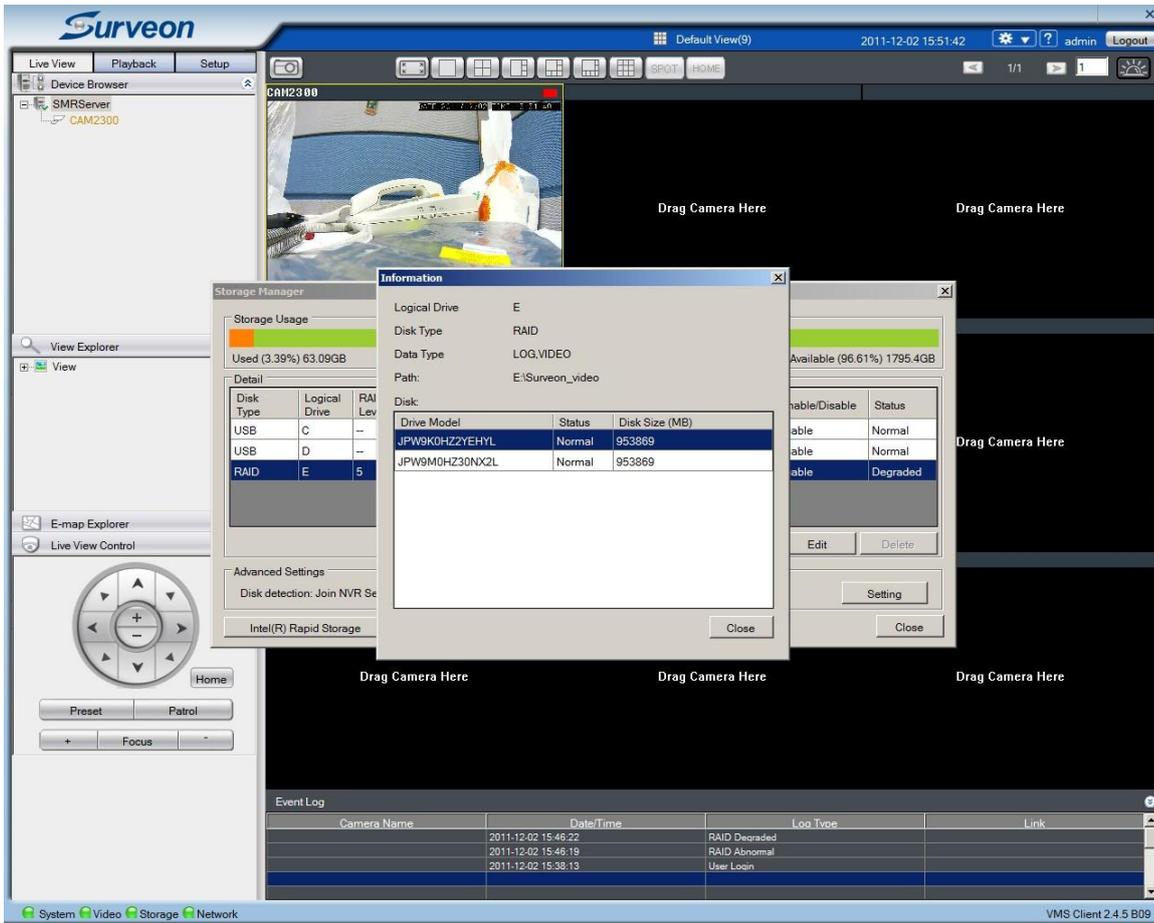
Camera Name	Date/Time	Log Type	Link
	2011-12-02 15:46:22	RAID Degraded	
	2011-12-02 15:46:19	RAID Abnormal	
	2011-12-02 15:38:13	User Login	

The interface also includes a navigation bar at the top with "Status", "Manage", "Preferences", and "Help" buttons. The bottom status bar shows "System", "Video", "Storage", and "Network" indicators, along with the version "VMS Client 2.4.5 B09".

User can also see that the storage status is degraded.



User can click Information to make sure that there are only two hard drives working now.

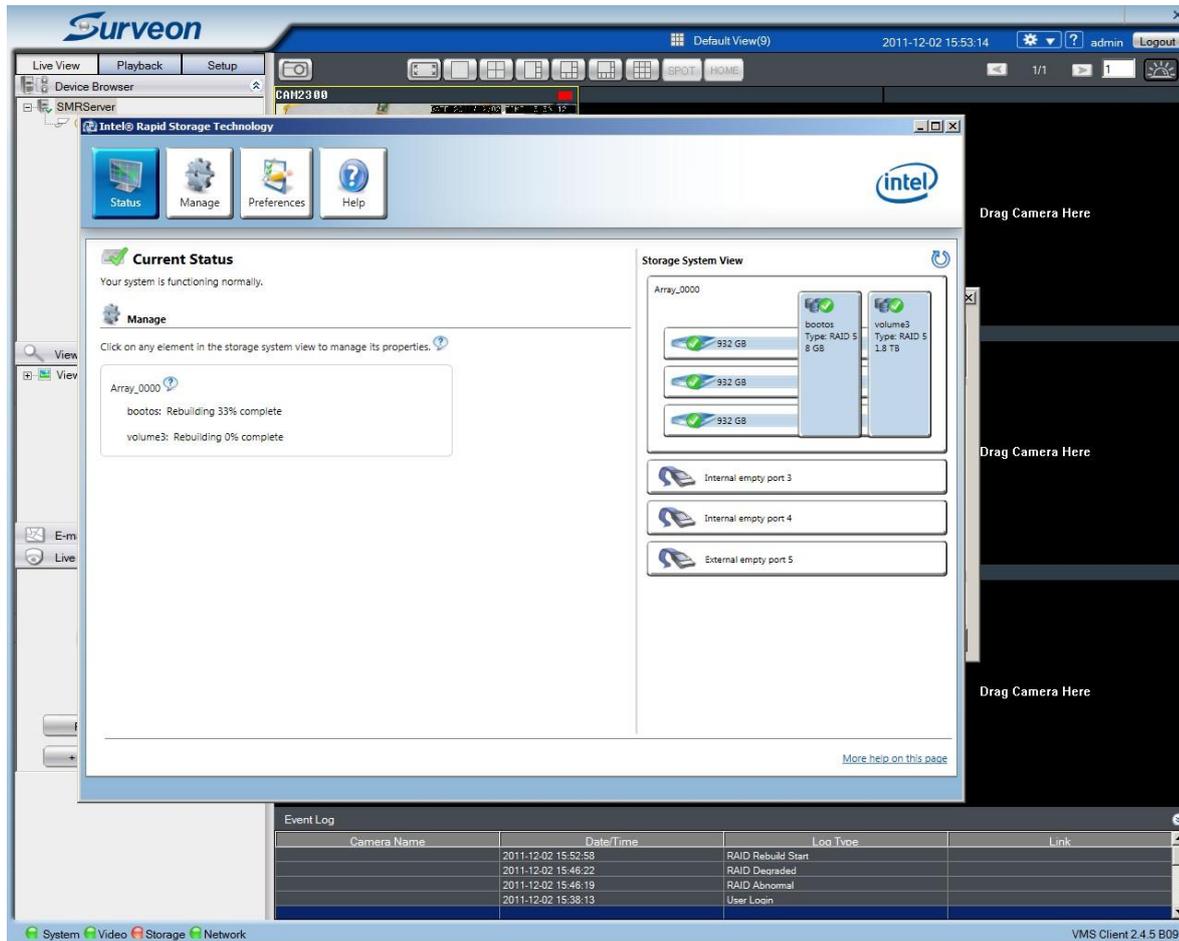


2.3 Rebuild RAID

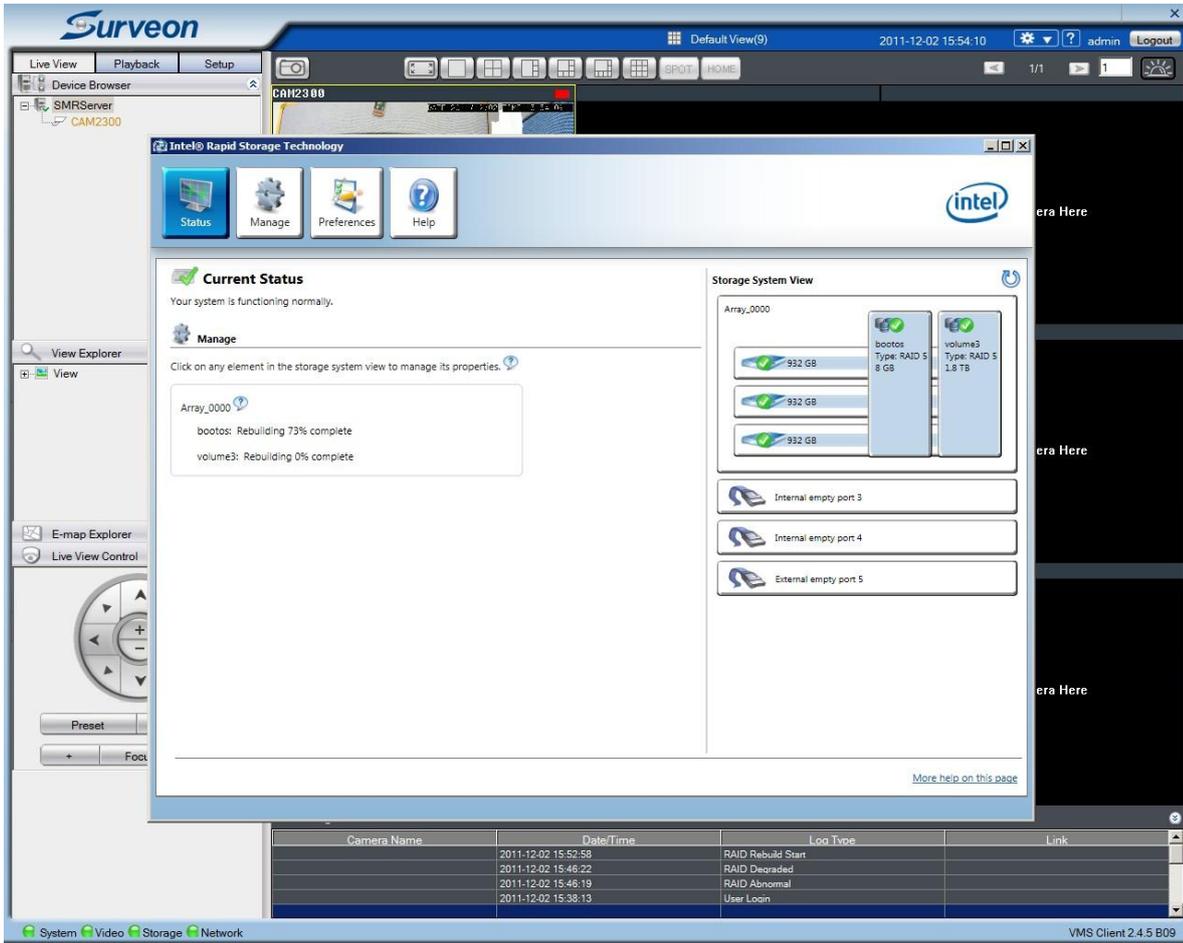
How to rebuild RAID if we insert another hard drive into the system? It is pretty simple, insert the new hard drive into the tray. Then, we can see the tray LED shows red.



And after several seconds, we can observe that the system is rebuilding bootos and RAID from Intel® Rapid Storage Tool. It may take 24 hours to rebuild the RAID. At first, we can see the Storage shows red in VMS panel.



After couple of minutes, the storage becomes green which indicates that the storage is normal now.



Furthermore, the LED on the tray becomes blue also.



In VMS Storage Manager, we can observe that the RAID status is rebuilding.

Surveon Default View(9) 2011-12-02 15:54:38 admin Logout

Live View Playback Setup

Device Browser: SMRServer CAM2300

View Explorer: View

E-map Explorer

Live View Control: Home, Preset, Patrol, Focus

CAM2300

Drag Camera Here

Storage Manager

Storage Usage: Used (3.4%) 63.19GB Available (96.6%) 1795.3GB

Detail

Disk Type	Logical Drive	RAID Level	Drive Size(MB)	Available Size(MB)	Data Type	Online	Enable/Disable	Status
USB	C	--	3592	0	OS.APP	YES	Enable	Normal
USB	D	--	94	0	NO	YES	Enable	Normal
RAID	E	5	1899407	1838384	LOG.VIDEO	YES	Enable	Rebuilding

Information Edit Delete

Advanced Settings: Disk detection: Join NVR Server disk allocation Setting

Intel(R) Rapid Storage Close

Event Log

Camera Name	Date/Time	Log Type	Link
	2011-12-02 15:52:58	RAID Rebuild Start	
	2011-12-02 15:46:22	RAID Degraded	
	2011-12-02 15:46:19	RAID Abnormal	
	2011-12-02 15:38:13	User Login	

System Video Storage Network VMS Client 2.4.5 B09