RAID User's Guide

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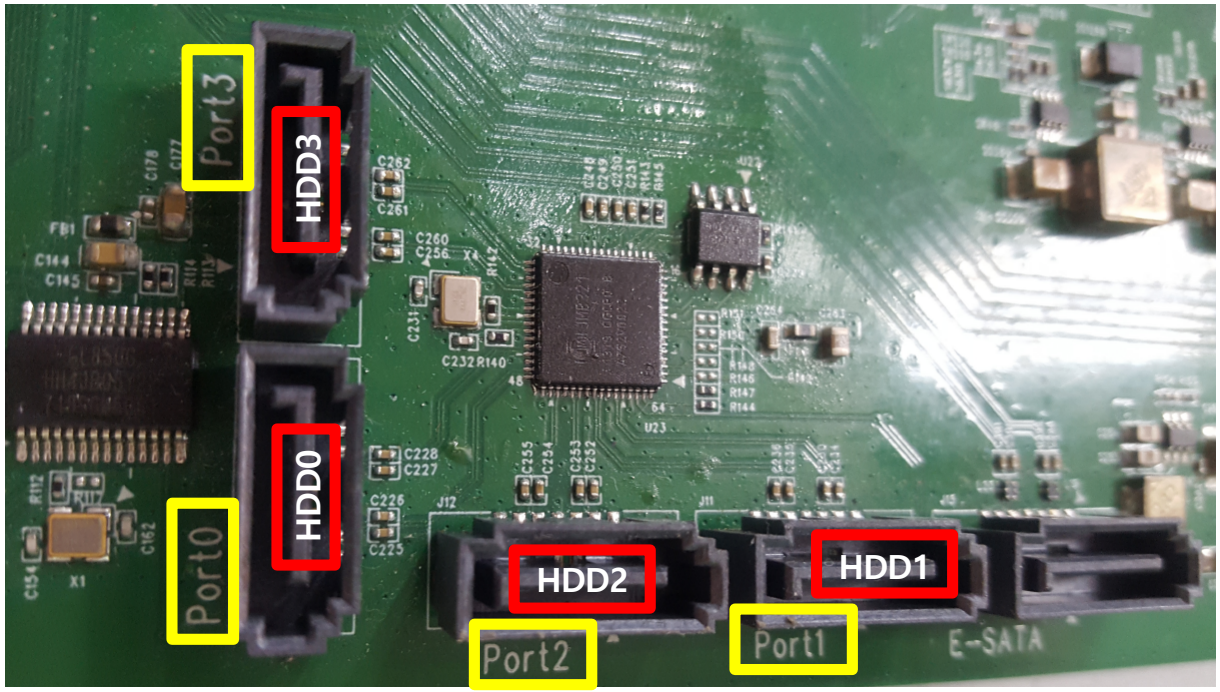
SATA Port vs. HDD number

- **SATA Port vs. HDD number**
  - ✓ SATA Port0 → HDD0
  - ✓ SATA Port1 → HDD1
  - ✓ SATA Port2 → HDD2
  - ✓ SATA Port3 → HDD3

- **Ex) AT-1643's SATA Port**



Supported RAID Levels

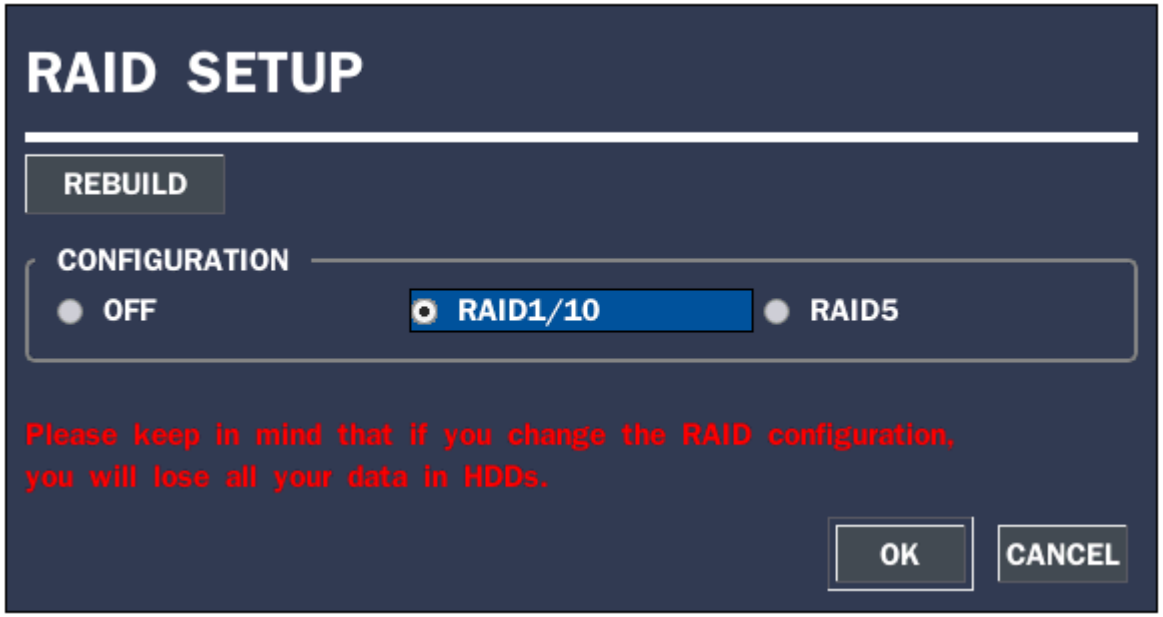
- **RAID1 (Mirroring)**
  - ✓ 2 HDDs are required.

    Ex) HDD0+1, HDD1+3, HDD2+3, and so on.
- **RAID10 (Mirroring + Stripping)**
  - ✓ 4 HDDs are required.
- **RAID5 (Stripping + Parity)**
  - ✓ 3 or 4 HDDs are required.

    Ex) HDD0+1+2, HDD0+1+2+3, and so on.

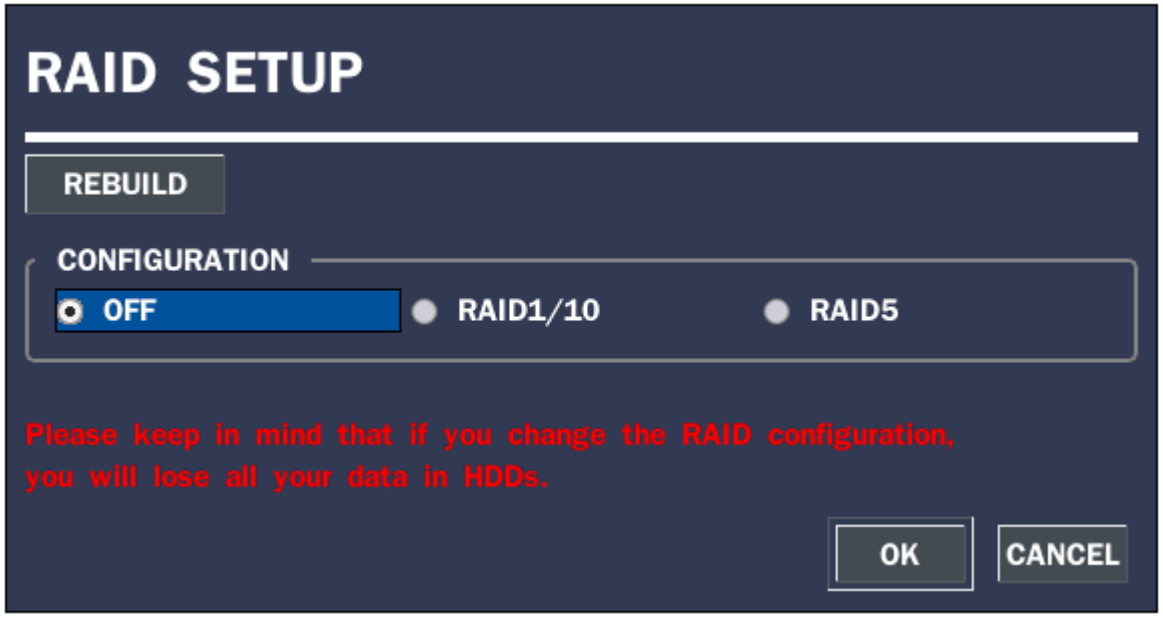
RAID Creation Procedure

1. Install HDDs
2. Power On
3. Format HDDs
4. Enter the menu of "Setup → Storage → RAID Setup"
5. Select RAID Level
6. All subsequent steps are performed automatically.



RAID Removal Procedure

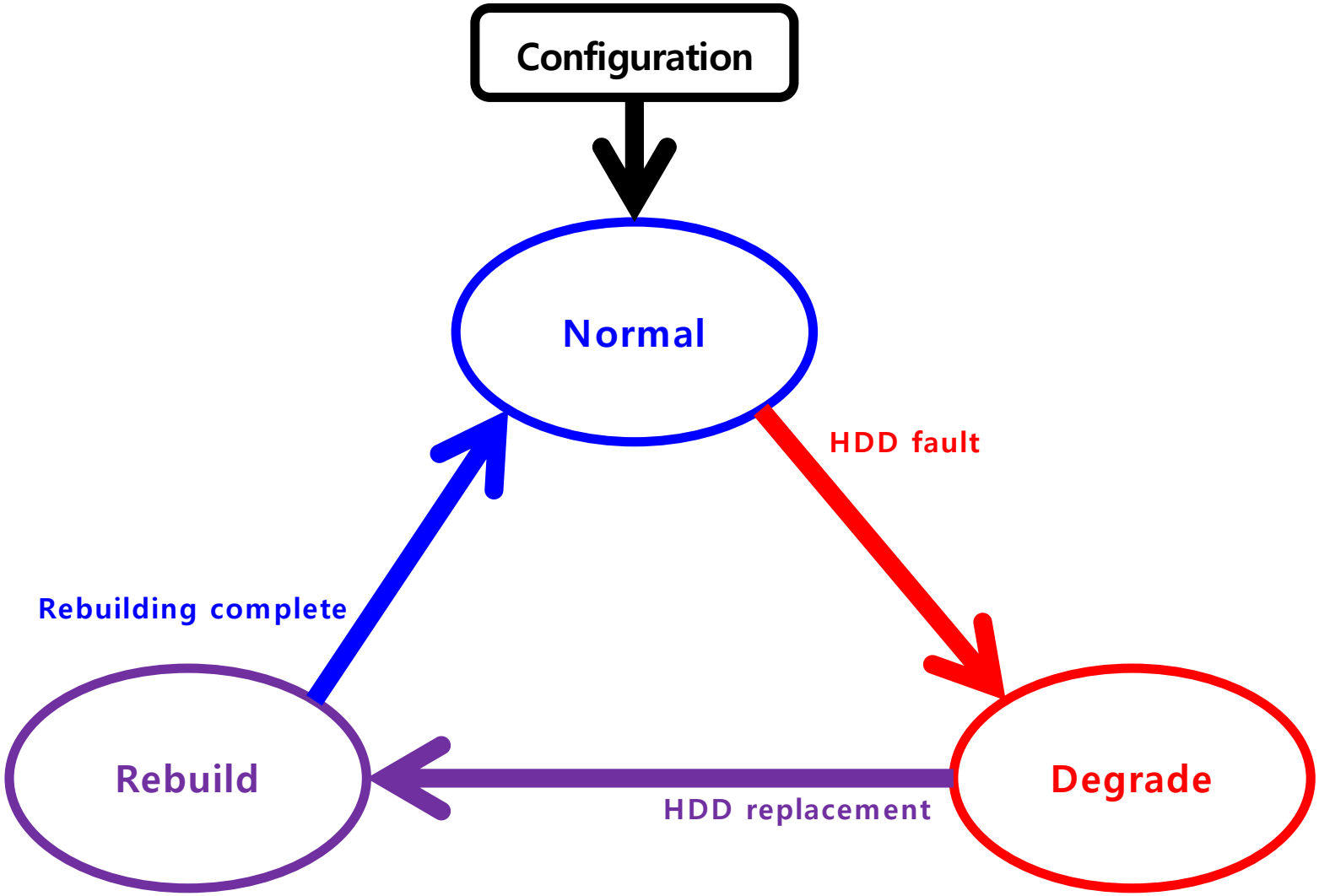
1. Enter the menu of "Setup → Storage → RAID Setup"
2. Select "OFF"
3. All subsequent steps are performed automatically.



RAID States

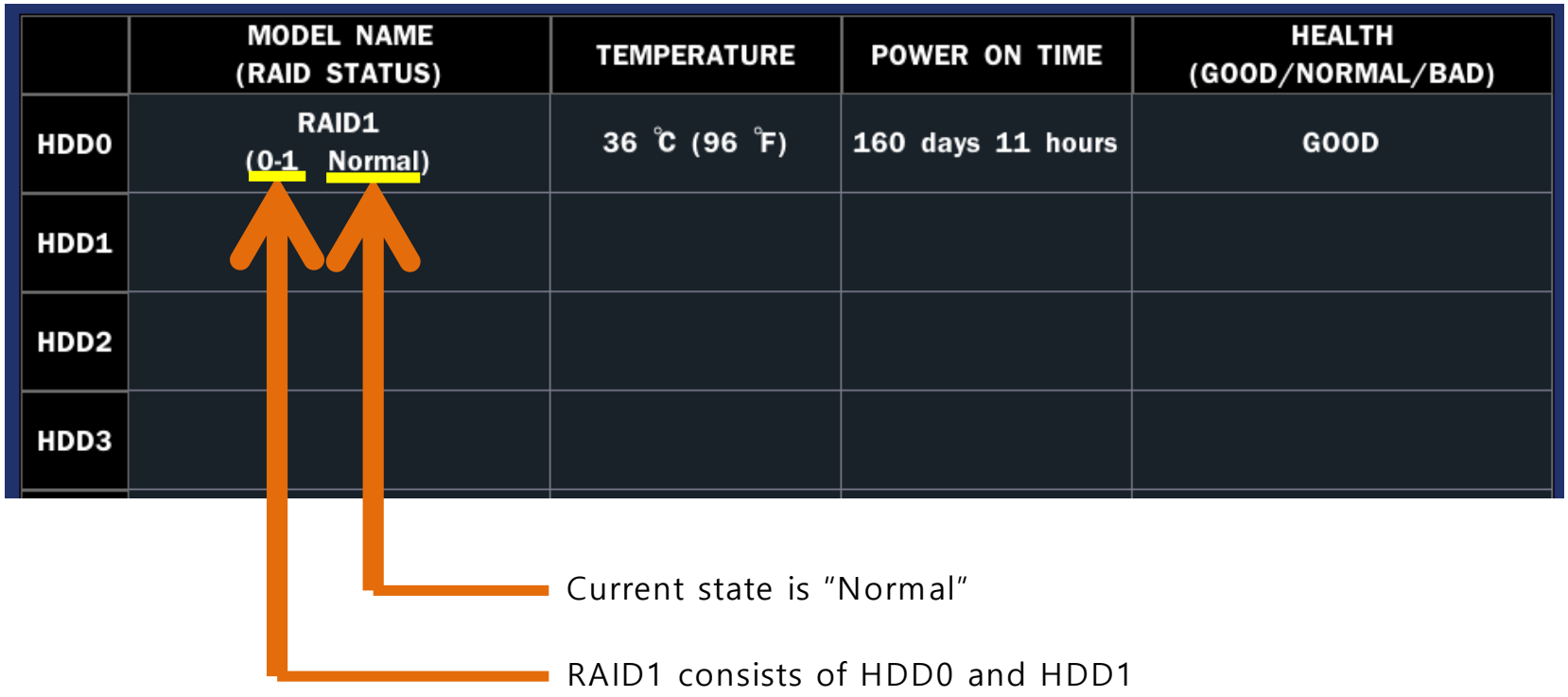
- **Normal State**
  - ✓ RAID configuration is in a healthy state.
- **Degrade State**
  - ✓ One of HDDs in a RAID has some problem.
  - ✓ However, recording continues through normal HDD.
- **Rebuild State**
  - ✓ After replacing the failed HDD with a new one, RAID is being rebuilt.
  - ✓ Rebuild progresses without affecting recording.
  - ✓ Rebuild progress can be checked through a menu.

RAID State Flow



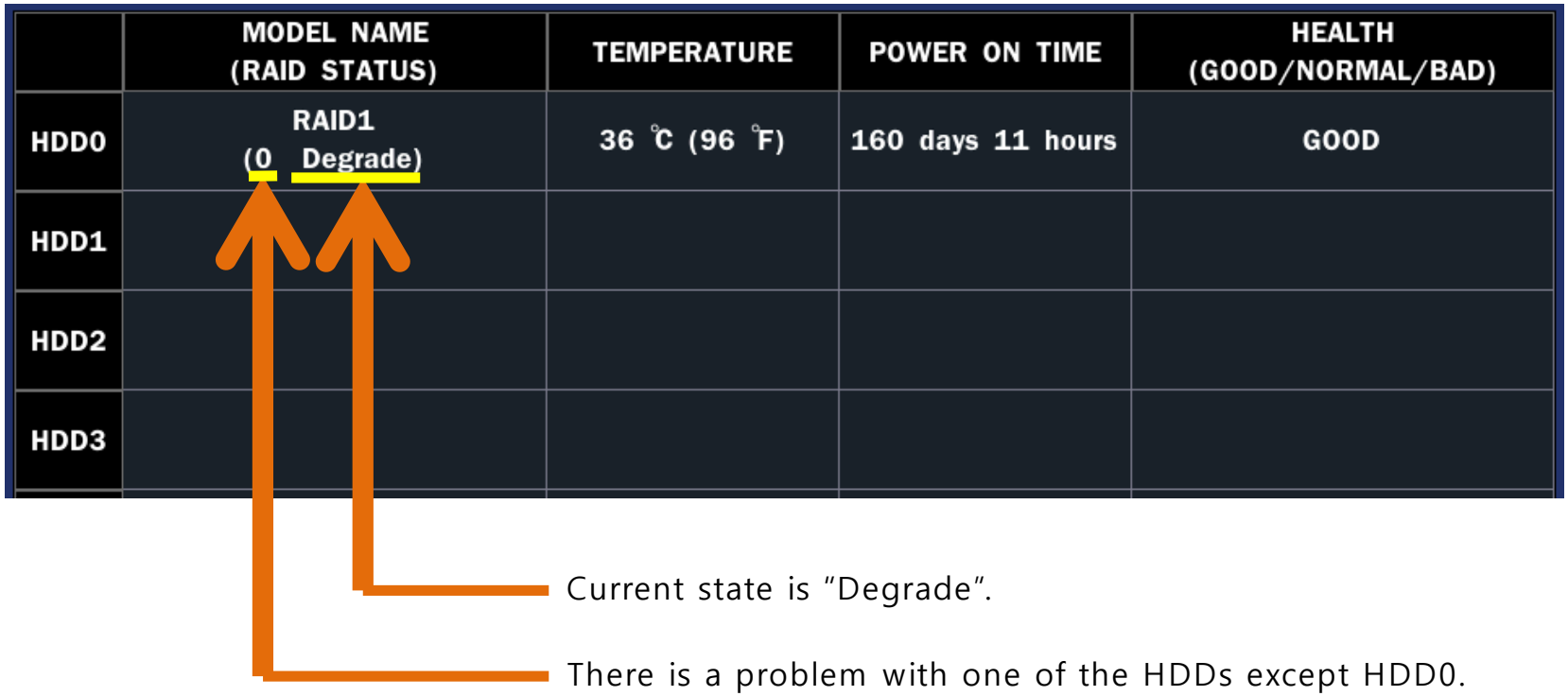
RAID Status Check (1)

- Setup → Storage → Disk Info



RAID Status Check (2)

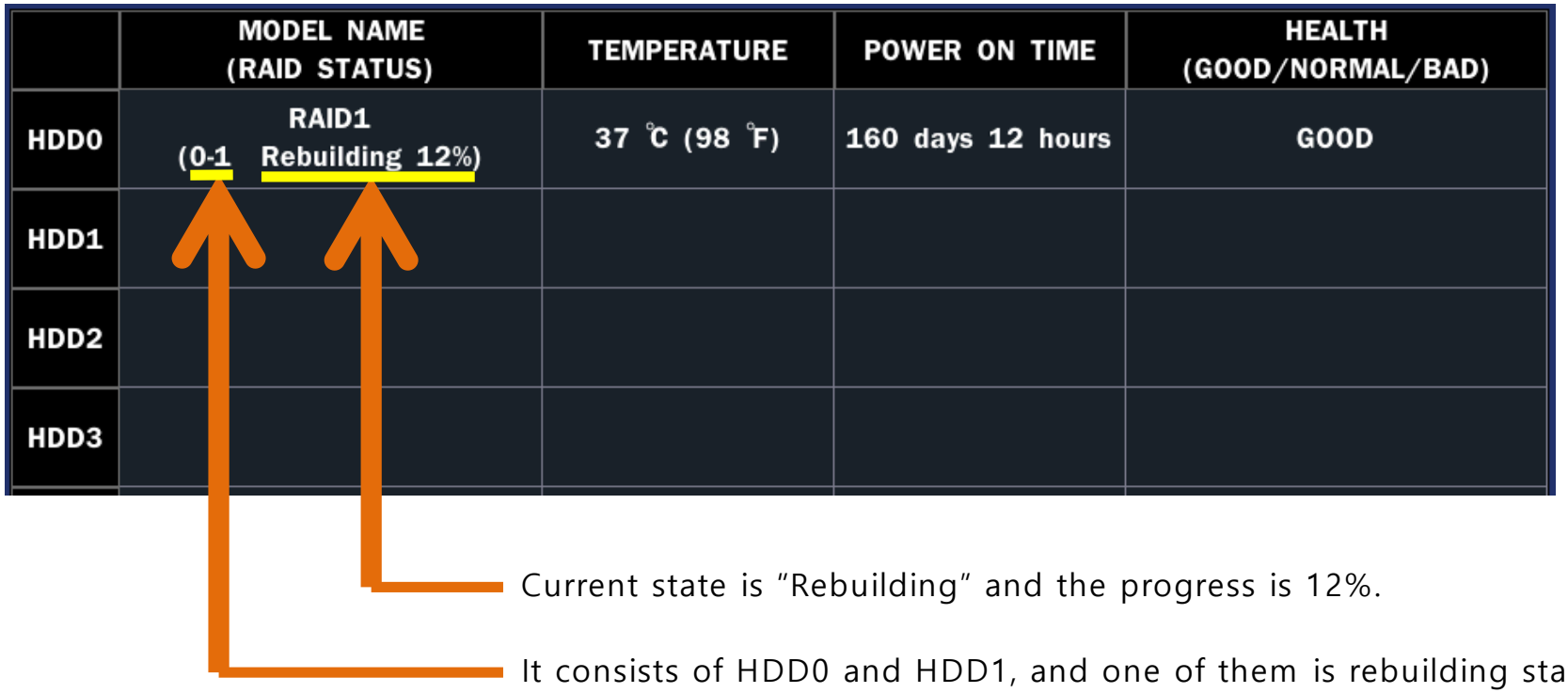
- Setup → Storage → Disk Info



✓ **Open the top cover of the DVR and replace the HDD except HDD0 with a new one.**

RAID Status Check (3)

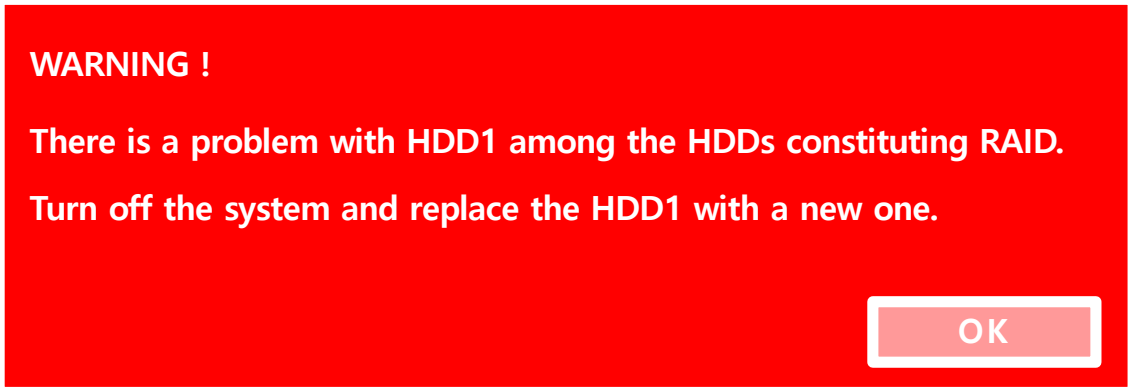
- Setup → Storage → Disk Info



RAID Fault Notification

- When a RAID fault occurs, the following notifications occur within 30 minutes

(1) Message Box Pop-up (unconditional)



(2) System Log (unconditional)

(3) Alarm Output (conditional)

It can be enabled or disabled through "HDD Failure" item on the "System Event Notification" menu.

(4) E-mail (conditional)

It can be enabled or disabled through "HDD Failure" item on the "System Event Notification" menu.

RAID Rebuilding Procedure

- In the "Setup → Storage → Disk Info" menu,
  Check if the RAID state is "Degrade" and remember the normal HDD numbers.
- Select "System Shutdown" on the right-click menu. (Important !!!)
- Power off.
- Replace the failed HDD with a new one and Power on.
- Format new HDD on the format menu.
- In the "Setup → Storage → RAID Setup → Rebuild" menu,
  select the HDD number which is replaced newly.
- All subsequent steps are performed automatically.
- In the "Setup → Storage → Disk Info" menu,
  check if the RAID state is "Rebuilding".

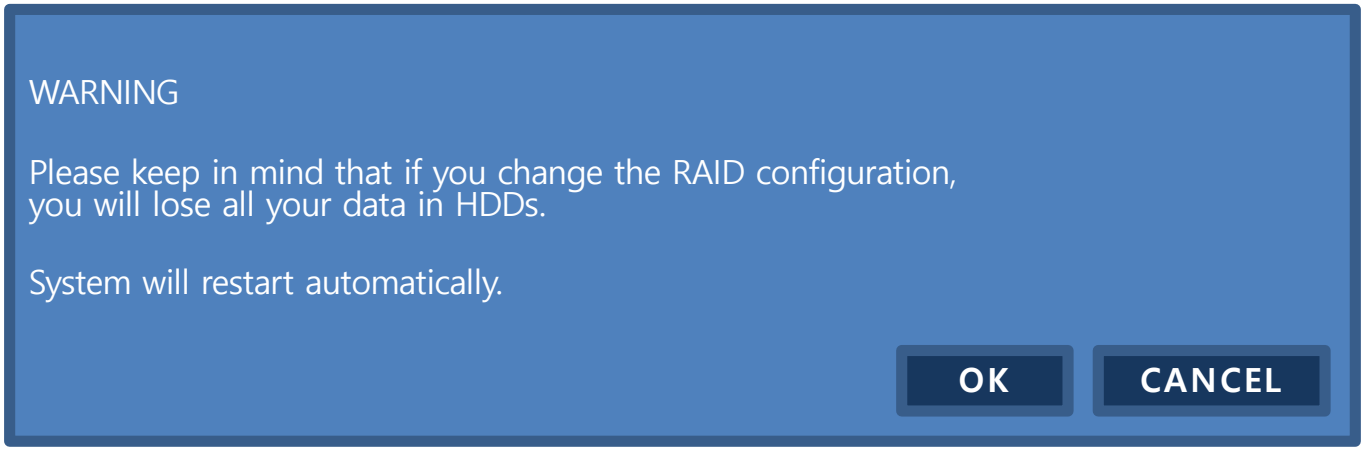
RAID Capacity Limitations

- **Maximum Capacity of RAID is 16TB, which is due to the limitation of 32-bit CPU.**
- **Maximum Capacity of HDDs according to RAID Levels**

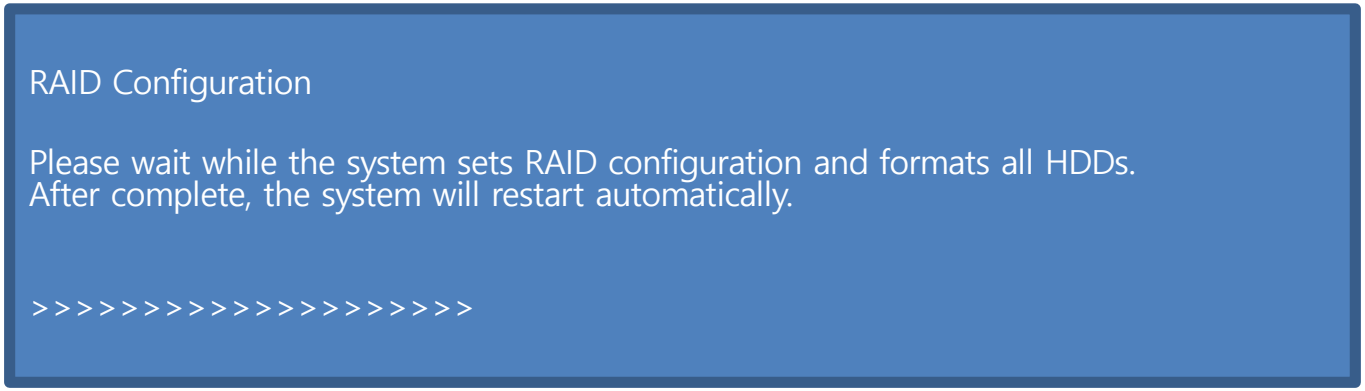
RAID Level	Max. Capacity of each HDD				RAID Capacity
	HDD0	HDD1	HDD2	HDD3	
RAID1	16TB	16TB			16TB
RAID10	8TB	8TB	8TB	8TB	16TB
RAID5	8TB	8TB	8TB		16TB
RAID5	4TB	4TB	4TB	4TB	12TB

Messages (1)

- When user changes RAID configuration :



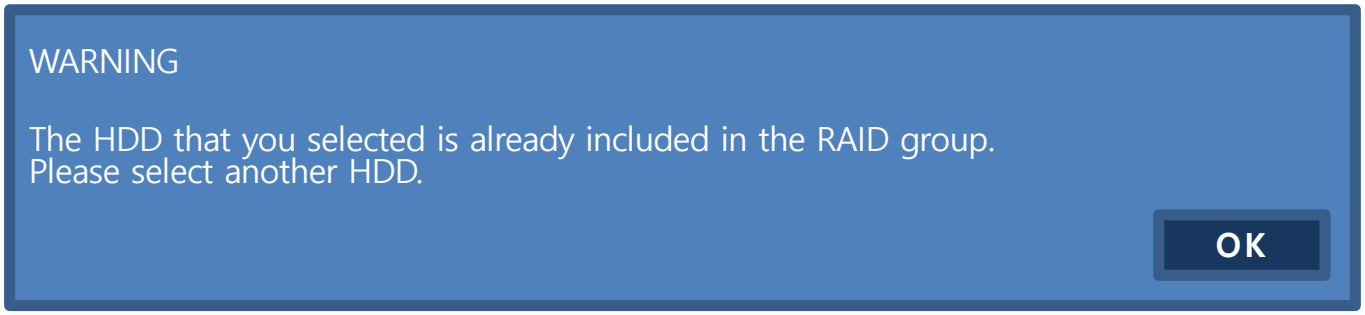
- When a RAID configuration is in progress :



Messages (2)

- When there is no RAID :

- When the user selects HDD incorrectly :



Messages (3)

- Final confirmation for RAID rebuild :

- When RAID rebuild is in progress :