Milesight-Troubleshooting RAID

NVR Version	XX.9.0.2	Update	2018.12.5

1.What is RAID?

RAID (Redundant Array of Independent Disks) is a storage technology that combines multiple disk drive components into a logical unit. A RAID setup stores data over multiple hard disk drives to provide enough redundancy so that data can be recovered if one disk fails.

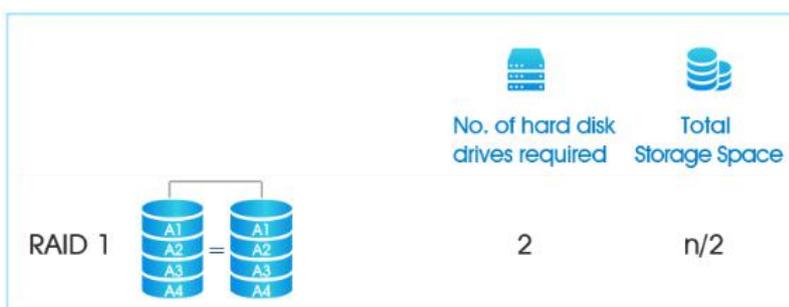# 2. Different kinds of RAID

> **RAID 0**

It's also known as "disk striping." With RAID 0, data is written across multiple disks.

Advantage: The work that the NVR is doing is handled by multiple disks rather than just one. It increases the performance because multiple drives read and write data at the same time, and improves disk I/O.

Disadvantage: There is no fault tolerance. It will affect the entire array and increase the possibility of data loss or corruption if one disk is failed.

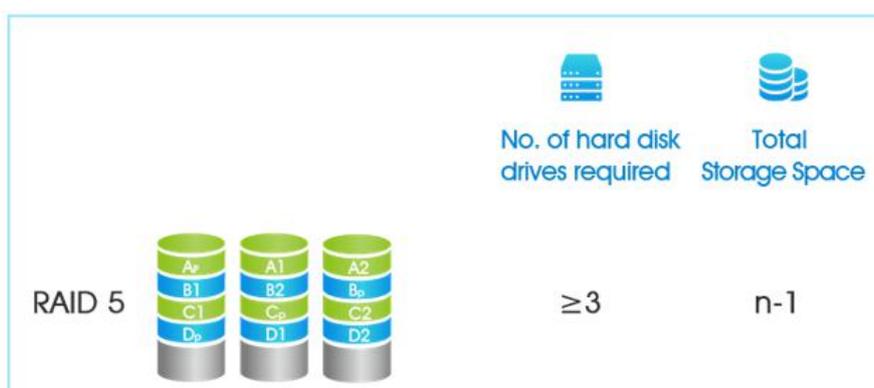The minimum quantity of disks required is two.

> **RAID 1**

A fault-tolerance configuration known as "disk mirroring." With RAID 1, data is copied

seamlessly and simultaneously from one disk to another, creating a replica or mirror. The other disks would keep working if one disk is dead.

Advantage: It's the simplest way to implement fault tolerance and it's relatively low cost.

Disadvantage: The downside is that RAID 1 causes a slight drag on performance. Also, it cuts half of the total disk capacity: For example, the total storage capacity of a server would be 1 TB but not 2TB if it features two 1TB drives and is configured with RAID 1.
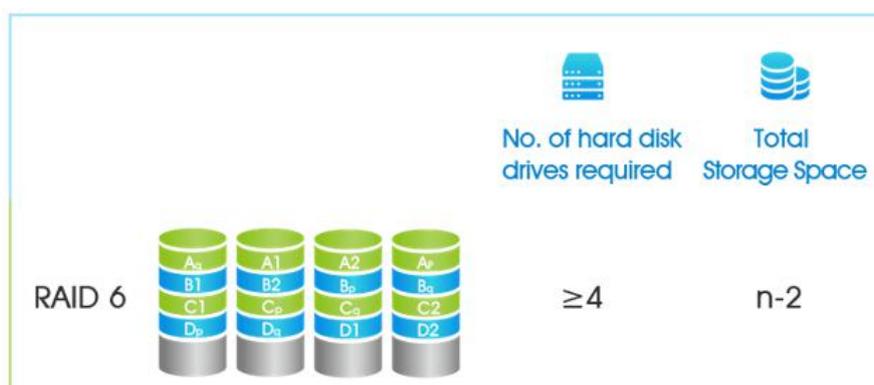
➤ RAID 5

This RAID level provides better performance than mirroring as well as fault tolerance. With RAID 5, data and parity (which is additional data used for recovery) are striped across three or more disks.

Advantage: If a disk gets an error or starts to fail, data will be recreated from this distributed data and parity block seamlessly and automatically.

Disadvantage: It causes performance loss to the servers which perform a lot to write operations.
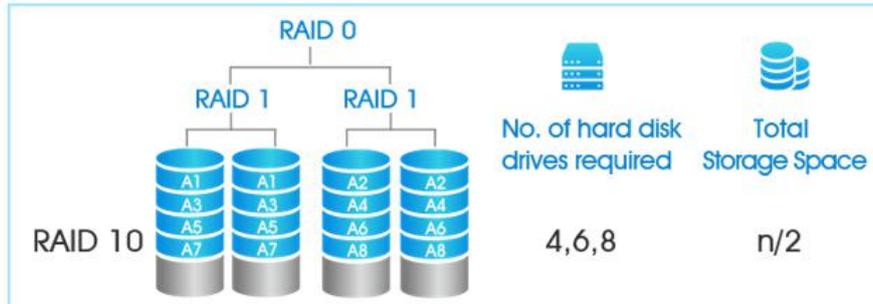
➤ RAID 6

It's identical to RAID 5. Besides, it's an even more robust solution because it uses one more

parity block compared with RAID 5. The system is able to normal operation even two disks are dead.

➢ **RAID 10**

Which is a combination of RAID 1 and 0 and is often denoted as RAID 1+0. It combines the mirroring of RAID 1 with the striping of RAID 0.

Advantage: The performance is the best among all the RAID levels.

Disadvantage: It is costly, requiring twice as many disks as other RAID levels (Minimum disk quantity is four).
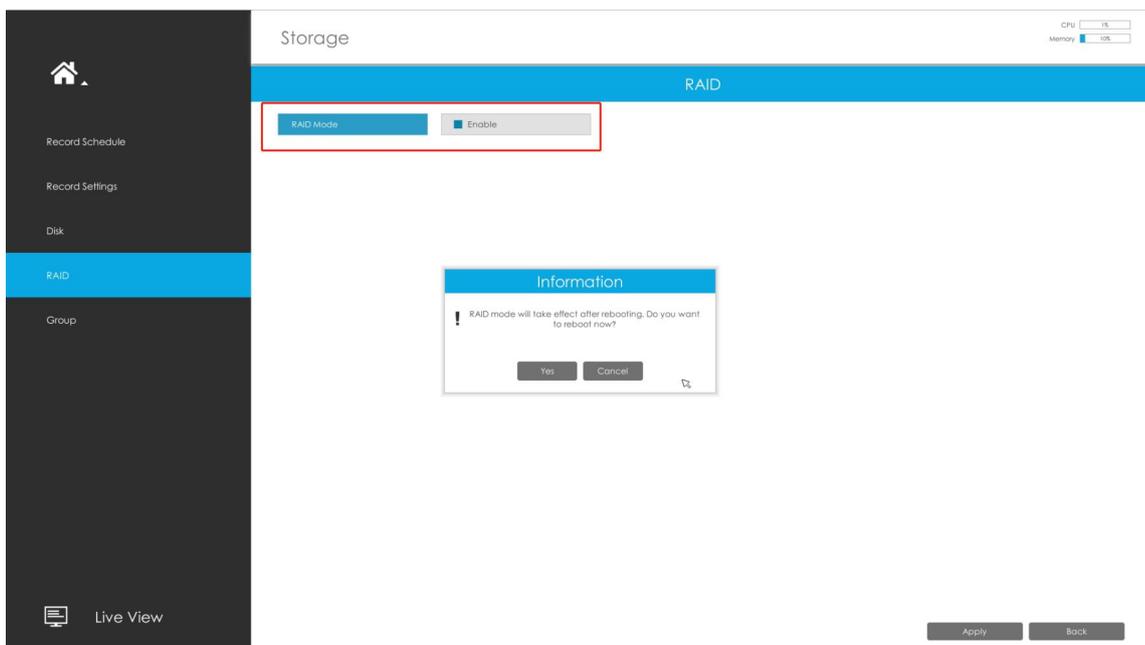
Note:

1) Same model and capacity HDDs would play the best performance of RAID.

2) The total capacity of RAID which is consisted of different capacity HDDs is based on the smallest capacity HDD. For example, the total capacity of RAID 0 is 3TB (1TB+1TB+1TB) but not 6TB (1TB+2TB+3TB) if there are 3 HDDs whose capacity are 1TB, 2TB, 3TB respectively.
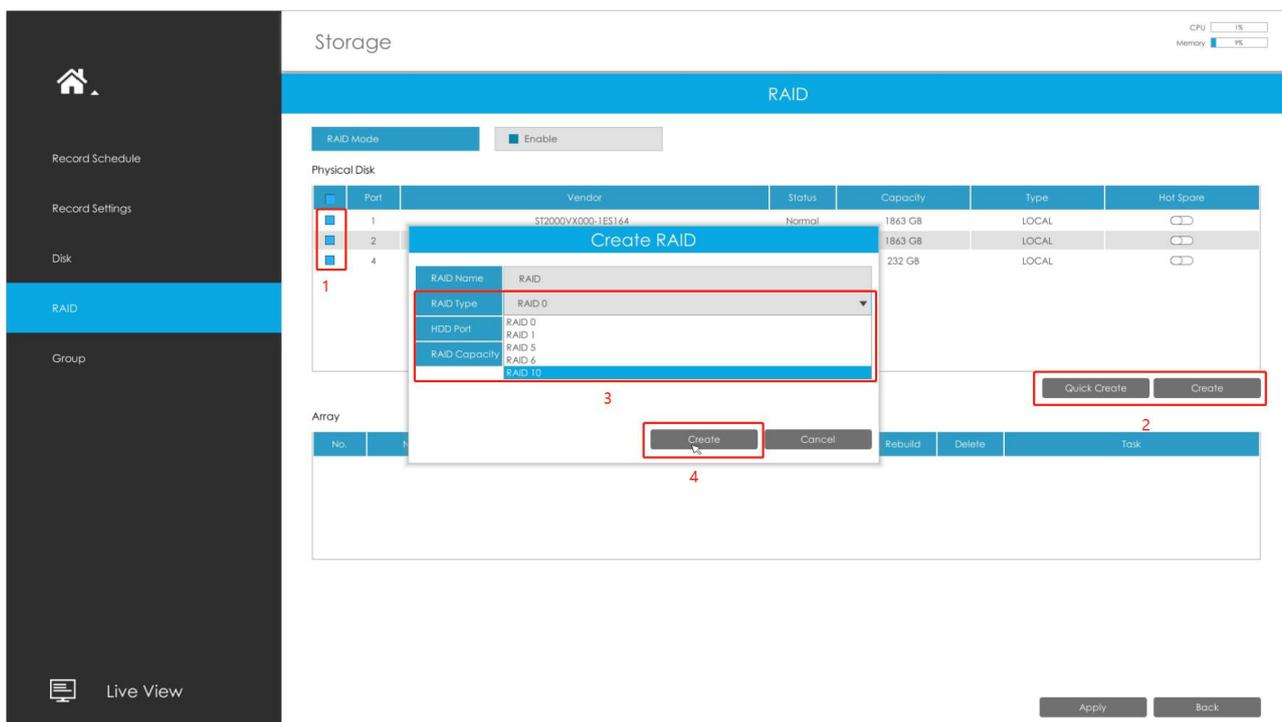
3.How to set up RAID?

Note: The Raid can only be set up on Monitor side.

There are two steps to complete the setting.

Step1. Go to "Storage" → "RAID" . Then enable RAID. NVR will reboot after enabling.

Step2. Select HDD and click [Create] or [Quick Create] to create a new array. Choose the RAID Type you want to create and new array will be available after a while.

Hot Spare: A disk can be used as the hot spare for any array created in the system.

Rebuild: When the array is in Degraded status, the device can start rebuilding the array automatically with the hot spare disk to ensure the high security and reliability of the data.

Note:

1. RAID is only available for 4K H.265 NVR 7000/8000 Series and 4K H.265 PoE NVR 7000 Series.

2. RAID capacity can not be larger than 16TB.

3. Quick Create is only for RAID5.

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