Qsan Document - White Paper

Fast Rebuild

Version 1.0
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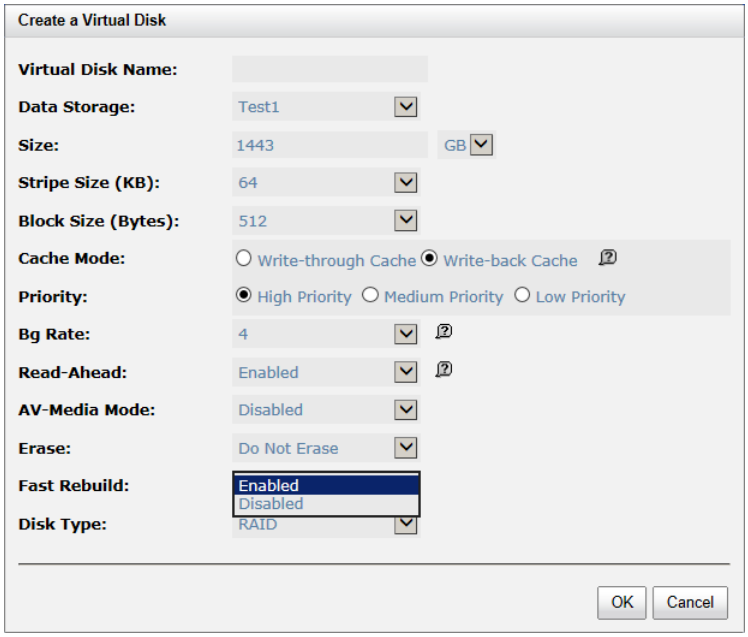
TIP:
With less changed partition, the Fast Rebuild feature may go faster. If the virtual disk is full of changed partition. The rebuild may take the same time without Fast Rebuild feature.

Configuration

When creating a virtual disk, enable the Fast Rebuild. The default is disabled.



Constraint

Here are some constraints about Fast Rebuild.

- Only thick/fat RAID group supports this feature. Thin provision RAID group already has this feature implement.
- When rebuild happened in a fast rebuild virtual disk, clean partitions are not rebuilt since there are no data saved there. Though clean partitions are never rebuilt, their health status is good.
- If all partitions of the fast rebuild virtual disk are clean, then no rebuild would happen and no event would be sent.
- The RAID stacks could not use optimize algorithm to compute parities of a partition which is not rebuilt. Thus, the performance of random write in a clean partition would be worse.

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CAUTION:
The fast rebuild should not be enabled for a virtual disk whose access pattern is random write.

Test Result

Here is the configuration and test result:

- HDD: Seagate Constellation ES ST500NM0011 500GB SATA 6Gb/s (x4)
- RAID Group: RAID 5
- Virtual Disk: 1TB

Capacity	Usage	Disable Fast Rebuild	Enable Fast Rebuild	Improved
1TB	0GB	52 min. 13 sec.	5 sec.	62,600%
1TB	250GB	52 min. 20 sec.	13 min. 42 sec.	382%
1TB	500GB	52 min. 18 sec.	25 min. 26 sec.	206%
1TB	750GB	52 min. 32 sec.	38 min. 36 sec.	135%

Applies To

- AegisSAN Q500: FW 1.2.0
- AegisSAN LX: FW 3.3.0

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