



PROFESSIONAL SERVICES TECH NOTE #057

2 TB SATA drives

The Concept

The 2 TB SATA drives have started shipping and their capacity is changing the rules for managing performance and system growth. Use the following information to plan for their inclusion in your environment. Even if you do not have SATA in your environment, higher capacity FC and SAS drives will create some of the same concerns.

Specifications

Minimum Data ONTAP version: 7.3.2

Right-size capacity: 1,695 GB

Drive operation time estimates

Capacity	Zeroing (hours)	Rapid RAID Recovery (hours)	Reconstruction (hours)
1 TB SATA	4.3	5.5	9.3
2 TB SATA	5.6	12.8	18.5

Maximum disks in 64-bit aggregates (unlisted systems are unsupported by DOT 8.0)

Platform	Max 64-bit Aggr Size	Max disks (Data + Parity)	Optimal RAID groups
FAS2040	30 TB	22	2 RGs of 11 disks
FAS3040/3070, FAS3140/3160	50 TB	36	3 RGs of 12 disks
FAS3170, FAS6030/6040	70 TB	51	4 RGs of 13 disks
FAS6070/6080	100 TB	71	5 RGs of 15 disks

The posted figures for maximum number of spindles and maximum capacity supported by system platform is based on 1 TB drives. When adding 2 TB drives you must count each drive as two drives. For example, the FAS2040 supports up to 136 drives (12 internal + 124 external). This equates to eight DS14 shelves of 1TB drives but only four DS14 2TB shelves (Five and two DS4243 shelves). All systems will still achieve maximum manageable capacity despite the lower spindle count.

What It Means To You

Although supported in Data ONTAP 7.3.2+, the 2 TB drive is intended for use in 64-bit aggregates introduced in ONTAP 8.x. The 32-bit aggregates in 7.3.2 can only use 11 drives (9 data). Remember the 2x factor when determining how many spindles your system will support when adding 2 TB drives. If you are designing an all SATA system, remember ONTAP 8.0 requires a 32-bit aggregate for the root volume. You should plan for 1 – 2 more spare drives to protect against another disk failure during the long recovery and reconstruction windows.

More Information

TR-3786 A Thorough Introduction to 64-Bit Aggregates: <http://media.netapp.com/documents/tr-3786.pdf>

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