

Subject Name: MS Servers Standard

Category Name: Storage

Topic: Average Response time in MS for Data drives

Discussion: Higher values may indicate I/O requests are queued - causing slower response times to an application

How Where to Inspect: Check the avg disk sec/transfer counter in PerfMon

Common Symptoms of Issues: Poor or limited I/O performance

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Topic: C: Free disk space as percent of drive size

Discussion: The operating system needs free space for temporary use, page files, log files, snapshots for backups, and to store applications and system files. A system will crash when no disk space is available.

How Where to Inspect: Click on My Computer or use Computer Management tools to monitor free disk space.

Common Symptoms of Issues: Server crashes; poor performance

Subject Name: MS Servers Standard

Category Name: Storage

Topic: Data drives - Free disk space as percent of drive size

Discussion: Data volumes need free space for data and file storage, temporary use, log files, snapshots for backups, etc. An application will crash when no disk space is available.

How Where to Inspect: Click on My Computer or use Computer Management tools to monitor free disk space.

Common Symptoms of Issues: Server crashes; poor performance

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Topic: Defragmenting Storage

Discussion: When the sectors that comprise a file are scattered across the disks, more time and I/O's are required to locate and read the data. Defragmentation arranges the sectors of a file to be contiguous, thus reducing the number of I/O's required for the read or write operation.

How Where to Inspect: Start/Computer/select drive/Properties/Tools/Defragment Now button/Analysis to view the existing state of a volume, and defragment as needed. This can also be scheduled to occur automatically.

Common Symptoms of Issues: Poor performance

Subject Name: MS Servers Standard

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Topic: Fiber Channel Speed

Discussion: Fibre Channel is available in 1Gb, 2Gb, 4Gb, and 8Gb speeds per port. Multiple ports can be aggregated using the MPIO protocol.

How Where to Inspect: Check the manufacturers specifications of the controller

Common Symptoms of Issues: Poor or limited I/O performance

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Topic: Format (sector) size of data drives

Discussion: The format size is the smallest amount of data that is transferred in a I/O request. Larger format sizes can boost raw data throughput, but at the expense of I/O's per second.

How Where to Inspect: Run C:> MSINFO32 , navigate to Components, then select Disks - the report displays the cluster size for all available volumes).

Common Symptoms of Issues: Poor or limited I/O throughput

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Topic: Infiniband speed

Discussion: InfiniBand offers point-to-point bidirectional serial links intended for the connection of processors with high-speed peripherals such as disks. On top of the point to point capabilities, InfiniBand also offers multicast operations as well. It supports several signaling rates and, as with PCI Express, links can be bonded together for additional bandwidth.

How Where to Inspect: Check the manufacturers specifications of the controller

Common Symptoms of Issues: Poor or limited I/O performance

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Topic: **Is any type of file replication being used in a large server or web farm for caching?**

Discussion: File replication can protect files and data, but can more than double the I/O loads on a device.

How Where to Inspect: Check with IT admins to identify any files/folders being replicated.

Common Symptoms of Issues: Poor or limited performance

Subject Name: MS Servers Standard

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Topic: **Number of files on a server or in a single directory**

Discussion: A high number of files may cause slow response times to an application - it may require 10 - 30 seconds for a file to be "available" after the file is created, due to the operating system needing to update large file system indexes.

How Where to Inspect: Use Windows Explorer, select the folder, and right click to display the Properties of the folder, including the number of files.

Common Symptoms of Issues: Poor performance; unable to find a file
