



Standards and Practices

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Title: Best Practices for Server Disk Partitioning

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Server Partitioning Best Practices

Server Design Considerations

Use of Array Partitions vs. O/S Partitions

Array controllers are used in nearly every high performance server to interface with the local DASD. These controllers have on-board intelligence to improve overall performance in addition to providing fault-tolerant capabilities.

Each array can be divided into logical drives, as viewed from the array controller. Each of these drives is generally allocated to a dedicated portion of the array controller's cache, as well as specific monitoring for dynamic performance tuning. These logical array drives appear to the operating system as distinct, physical drives.

The operating system can further divide each of its "physical" drives into logical drives. This primarily aids in separating the O/S from non-O/S files, but does not provide a significant performance advantage.

Minimum Drive Configuration for Servers

For optimum performance in a Windows environment, the paging file should not be placed on the Boot drive (the drive where the O/S files reside). The definition of a separate partition, sized just larger than the maximum needed for a paging file, was recently added to the build process. The minimum drive configuration for servers is:

- C: 20 Gig O/S partition & Recovery partition
- E: as needed Applications & data, may be SAN-attached
- D: 4.5-6.5 Gig Paging file – should be local disk if possible
- Z: CD-ROM drive

Past practice has been to let the O/S define the partition for the paging file drive. Tests have shown that creating an Array Controller partition for the paging file provides enhanced performance over using the O/S defined partition. Based on these results, the following procedure should be used for creating server disk partitions.

General Configuration

When servers have locally attached disk, the array controller should be utilized where possible to create individual partitions for the C: and D: drives. If this is not supported, the O/S should be used to create a separate logical partition for the paging file. This will not yield as high a performance level as physical partitioning, but it is an improvement nonetheless.

Base Drive Configuration

This is the configuration that will be used when the first two physical drives are 18 Gig or larger.

1. Launch the Array Configuration Utility
2. Create an array from the first two physical disks (Array A)
3. Create an array from the remaining physical disks (Array B) if present.
4. Create a RAID 1 logical drive on Array A using all but 9 Gig (4.5 Gig mirrored) of the available space. This will be the O/S drive.
5. Create a RAID 1+0 logical drive on Array A using 4.5 Gig of space. This will be the paging drive. (This may display as 9 Gig until you choose RAID 1.)
6. Create a RAID 5 logical drive on Array B using 100% of the available space. This will be the E: drive. If the server has only two physical disks, then this logical partition will be created from the remaining space on Array A.

Common Completion Tasks

After the O/S is loaded, format the 4.5G partition and assign it drive letter "D:". Continue by formatting the remaining partition and assign it drive letter "E:". Relocate the page file (and size it appropriately) to the E: drive.

You can choose to maintain a small paging file on the C: drive to capture dump images. If this is desired, the pagefile size on C: should be limited to 256M. This can always be increased during debug/diagnostic procedures to capture a full memory dump if necessary, but for normal operation, the pagefile on the C: drive should be minimal.