Windows Disk Management Demonstration

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This video will look at how to use the logical disk management (LDM) utility included with Windows. This tool allows physical disks to be used as well as combining multiple physical disks together.

Demonstration

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1) To start disk management, run "diskmgmt.msc". This can be done from the run box from the start menu. On Windows 8.1 this can be done by right clicking the start menu. This can also be accessed from computer management, however running it from computer management uses less screen real estate.

2) If you wish to make a volume smaller, right click the volume and select the option "Shrink Volume". The volume will be able to shrink if there is contiguous free space at the end of the volume. If there is not, the drive will need to be defragged first. This can be done by opening the properties for the drive, selecting the tools tab and then press the button "Optimize".

3) To create a new simple volume right click some free space and select the option "New Simple Volume" to start the wizard. In the wizard, you can select the size of the drive and a drive letter. If you do not want to assign a drive letter you can mount the volume to a folder or not assign anything and do this later. You can also decide how you want the drive formatted.

4) To extend a volume, right click the volume and select the option "Extend volume". If this option is not available there is most likely no free space after the volume.

Demonstration Dynamic Disks

In order to access advanced features like combining multiple physical drives together, the drive must be converted to a dynamic disk. This can be done by right clicking the physical drive and selecting "Convert to dynamic disk" or this will be done

automatically as required.

1) To mirror an existing drive, right click the drive and select the option "Add mirror". It is just a matter of then selecting a physical drive with enough free space for the mirror. The data on the drive must be synced with the other physical drive which may take some time to complete.

2) If you wish to convert a physical drive to a basic disk, this will not be possible unless all the data for the physical drive is removed first.

3) To create a striped volume right click on some free space and select the option "New Striped Volume". A striped volume spreads out the data on multiple physical drives eventually. This offers no redundancy; however, it gives better performance. This also means that if one of the physical drives was to fail, all data that was stored in the striped volume would be lost. Since data is spread eventually, if you add multiple physical drives together, the total space will be a multiple of the drive with the least amount of free space. Once the striped volume is created, you will not be able to add additional drives to the striped volume or change the size of the striped volume.

4) To create a new RAID-5 volume, right click on some free space and select the option "New RAID-5 Volume". As RAID-5 volumes use one physical drive to store parity, they require 3 or more physical drives in order to operate. This effectively means that 1/3 of the total drive space is lost to parity, but it also means the volume will still work after the loss of one of the physical drives. Once the RAID-5 volume has been created, the data between the physical drives will not to be re-synced. This does take a while to complete. RAID-5 is only available in Windows Server.

5) If you have multiple physical drives with free space at the end, the space from these physical drives can be combined together to form the one volume. The space on each drive does not have to be the same amount. A spanned volume offers no redundancy or speed increases and if one physical drive is lost in the volume, all data on the volume is lost. Spanned volumes however can be shrunk or extended, unlike striped or RAID-5.

6) If you no longer require a mirrored drive, you can right click the volume and select the option "Remove mirror". This will create two physical drives with the same data on it. If the volume is still responsive, this is the clean way to remove a mirror.

7) If a physical drive in a mirror volume was to fail, you can use the option "Break Mirrored Volume". This will remove the mirror, however if both physical drives are still accessible, now or later, they may not have the same data on them so this option is generally only used when a physical drive is no longer responsive and is going to be removed.

8) If you need to replace a failed drive in a mirror, use the "Break Mirrored Volume" and then create a new mirror using the new physical drive.

9) If you place a physical drive in the system that has been configured as a dynamic disk in another system this physical drive will appear in disk management as a foreign disk. In order to use it, you need to right click the disk and select the option "Import

Foreign Disks". If it is part of a set of volumes, for example a striped volume, Windows will attempt to import the whole volume, however the volume will not be usable if physical drives are missing. To use the physical disk, the volume must first be imported with the other physical disks missing and then the volume needs to be deleted.

10) If you have a physical disk in a RAID-5 volume that stopped working and is now working, you can refresh the volume by selecting the option "Reactivate Volume". This will perform a check of the volume and make corrections where needed.

11) If you have a physical disk that is a RAID-5 volume that has failed, you can replace the physical disk by right clicking the volume and selecting the option "Repair Volume".

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References
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