Video – Disk Management (4 min)

When we want to install a hard drive in our system we're going to need to make that hard drive either a basic disk or a dynamic disk. A basic disk, which is the default, contains primary and extended partitions as well as logical drives. A basic disk is limited to four partitions. The Windows operating system needs to be installed onto a basic disk. After it's installed the basic disk can then be converted to a dynamic disk. Primary partition. The primary partition contains the operating system. There can be up to four primary partitions per hard drive and a primary partition cannot be subdivided into smaller sections. A primary partition can also be marked as the active partition. The operating system uses the active partition to boot the computer. Only one primary partition per disk can be marked as active.

In most cases, the C: drive is the active partition and contains the boot and system files. Meaning the MBR or Master Boot Record Partition Table. Newer systems that use EFI instead of BIOS are using the GPT or GUID partition table. If you're using the GPT instead of the MBR partition table you can have more than four primary partitions on a disk. An extended partition. There can only be one extended partition per hard drive. Once again, primary partitions, active partitions and extended partitions are all part of a basic disk. An extended partition cannot hold the operating system, but it can be subdivided into smaller sections called logical drives. A logical drive is a section of an extended partition. A dynamic disk has the ability to create volumes instead of partitions that can span across more than one disk.

For instance, if you wanted to create a mirrored volume or a spanned volume. Let's say you had three hard drives and you wanted to create a RAID array where all three hard drives work as one drive then you're going to need to have them configured as dynamic disks. The size of the volumes in dynamic disks can change after they've been set, free space can be added from the same disk or a different disk allowing the user to efficiently store large files. After a partition has been extended it cannot be shrunk without deleting the entire partition. File system. The file system that we'll be installing is the NTFS or New Technology File System. NTFS is the most commonly used Windows file system today. The previous Windows file system, FAT32, was introduced with Windows 95 and used primarily with Windows 98. NTFS file system has many advantages over its predecessor FAT32. It has improved File System Permissions, or ACLSs. It has File Level Encryption through the encrypting file system. It has File Compression, the ability to take a file and zip it right from the operating system. You can zip and compress your files or extract your files, unzipping them. It has File System Journaling which improves the stability of the file system and the ability to create Disc Usage Quotas for users. Implemented, volume sizes can go up to 255 terabytes. In FAT32 volume sizes were restricted to two terabytes implemented. Another two types of file systems that you'll probably be experiencing with your Windows systems is an exFAT or FAT64 file system which is used with USB Flash Drives. And the CDFS or Compact Disc File System that's used for optical disks.