Backup Teknologi Cheat Sheet

by Hbak via cheatography.com/67474/cs/17315/

MBR vs GPT

MBR (Master Boot Record)	GPT (GUID Partition Table)
Max. 4 primary partions, or 3 primary partitions and 1 extended partition	Nearly unlimited number of partitions. Limited to 128 partitions in Windows.
Max. 2TB disk with 512B sector. Up to 16TB with 4KB sector	Up to 18EB on both 512B and 4KB sectors
Not able to check if partition has been corrupted.	Able to check if primary partitions table is corrupted.
Not able to restore corrupted partition.	Able to restore corrupted partition.
Not able to restore corrupted partition.	Able to restore corrupted partition.
Supports all OS.	Read & Write is only supported on Windows 64-bit OS and . Boot is only supported on Windows 64-bit OS (except XP x64) with UEFI. Linux & Mac OS X10.6+ only support these feature if UEFI is available.

Basic & Dynamic Disks

Basic Disk	Dynamic Disk
Used to create & delete partitions on one disk	Able to create volumes that span multiple disks.
Used to create & delete logical drives within extended partitions	Able to create fault tolerant volumes.
Works with both MBR and GPT	Works with both MBR and GPT.

Disk Volumes

Simple	A single block of space from a single disk. Not fault tolerant.
Extended	Multiple volumes on the same disk is viewed as one. Not fault toelrant.

Disk Volumes (cont)

Spanned	Mulitple volumes on multiple disk is viewed as one. When the volume on one disk is full, the remaining data is allocated to the next disk. Not fault tolerant.
Striped /RAID 0	Multiple disks (min. two) of equal size, is viewed as one. Data is distributed evenly across all disks to increase performance. Not fault tolerant.
Mirrored/RAID 1	Data is copied across multiple disks of equal size. Only 50% of the total volume is available. Fault tolerant.
RAID 5	Multiple disks (min. three) of equal size is viewed as one. Data is distributed evenly across all disks. A parity is created on each disk, in order to restore data if one disk malefunctions. Fault tolerant.
RAID 10 (1+0)	Combines the features of RAID 0 and RAID 1 to provide high performance with fault tolerance.

Types of Backup

Full Backup	Make a copy of all the data, to another media. Takes a long time to create, but reduces the time to recover. Full backup must be performed.
Differential Backup	Only works together with full backup. Creates a backup of all the changes since the last full backup. Less time to create, than full backup, but more time to recover.

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Types of Backup (cont)

Incremental Backup	Unlike differential backup, incremental backup, only backup the data which has been changed since last full backup or last incremental backup. Fastest backup to create, but slowest backup to recover.

File Systems

FAT (File Allocation Table)	FAT provides an operating system with a map over the clusters, on which a file is stored. FAT increases the life of a hard disc, since it reduces the amount of time psysical seeking is required. All FAT-systems has a max file size of 4GB.
FAT32	Supports drives up to 2TB in size, where its predecessor only supported 2GB. FAT32 is compatible with every Windows, Mac and Linux system. Used mostly in USB-drives.
exFAT (Extended File Allocation Table)	Supports files above 4GB. Compatible with Windows and newer versions of MAC (software is needed to run on Linux).

File Systems (cont)

NTFS (NT File Systems)	NTFS supports file permissions. Change journal that can quickly recover errors if the computer crashes. Shadow copies for backups. Encryption, disk quota limits, hard links. Supports almost unlimited file size. Only fully compatible with Windows.
ReFS (Resilient File System)	Microsoft's newest file system. Designed to support extremly large amount of data. Reliable corruption detection. Automatically repair corruption on mirror and parity volumes without downtime. Removes corrupted data from namespace if no copy of data exists. Detects possible corruption and initiates proactivly repairs it.

Disk Quota

Can only be used on NTFS volumes.

Can track and restrict the amount of space a user can use.

Is set on volumes, not files or folders.

Each individual user can be given different size available space.

The default administrator account cannot be given a quota.

FSRM (File Server Resource Manager)

Is enabled on volumes and folders, but not files.

There are two types of quotas:

Hard:
Set a limit on the amount of space that the content can use in a volume or folder.

Soft:
Tracks the disk space used, but doesn't limit it.

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FSRM (File Server Resource Manager) (cont)

Both types can notify when a percentage of the limit is reached.

Quotas can be created customly in each volume and folder, or a template can be used.

Templates can be used to define space limit, notification thresholds and actions.

Templates can be enforced on subfolders, both current and future.

A quota can be created from a template, to deviate from it. The modified quota doesn't modify the template.

FSRM can create **file screen**.

File screens prevents specific types of files to be saved on a volume or folder.

File screens are enabled on volumes and folders, but not to specific users.

There are two types of file screens:

Active:
Prevents the chosen file type from being saved.

Passive:
Monitors file types, but doesn't prevent them from being saved.

Like quotas, file screens can also send notifications, and use predefined templates.

VSS (Volume Shadow copy Service)

Able to backup a volume while it is still being written on.

Supported on Windows XP/Windows Server 2003 and later.

It is enabled on a volume, not on files and folders.

Up to 64 copies can be stored on the system, and by default they are saved on the same volume. When the limit is reached, the oldest copies are deleted first.

By default, 10% of a volume is used for storing shadow copies.

Two snapshots are taken by the data on a volume each day.

Windows Backup

Uses VSS and block-level backup.

Doesn't need to run every incremental backup, just select the date you want the backup from.

Can recover the data on the same or a new machine.

Automatically reuse the space of old backups, when it creates a new.

Backup volumes, not files or directories.

Following volumes can be backed up (must be on a local disk and NTFS-formatted):

Full Server: Includes all volumes. Best practice.

Critical Volumes: The operating system.

Windows Backup (cont)

Non-Critical Volumes: Files, applications and data.

Can save backups on the following storage types:

Local Disk:
Allows backup of all volume types and individual datafiles
Has a max. of 512 copies on one disk.
Disk used for backup is not visible and can't be used for saving data.

External Disk:
Allows backup of all types of volumes and individual datafiles
Disk is not visible
Can use multiple disks.

Shared Folder:
Allows backup of all types of volumes and individual datafiles, Backups are not saved consecutively unless stored in individual subfolders.

DVD:
Only allows backup of volumes.
Critical volumes can be used for system restore.
Volume is compressed on the DVD
Can span multiple disks.

The followiing types of backups can be made:

Automatic Backup:
Runs by default once every day, use **wbadmin disable backup** to disable this.
To change the automatic backup run the **Task Scheduler** and type **wbadmin start backup**.
Need to determine where to place the backup.
Can only be used on local or external disks.

Manuel Backup:
Can create backups on all mentioned storage types.
Can recover individual files and folders from backups on local and shared folders.
Local disk is automatically chosen if not changed.
Use as supplement for scheduled backups.

System State Backup from Command Line:
Created with the command **wbadmin start systemstatebackup**.
Can only be stored on local or external disk.
Only used to recover system state and system application.
Can only be scheduled with a script.