MBR vs GPT

BIOS	UEFI
<2TB	>2TB
max 4 partitions	max 128 partitions
Beyond 4: extended, logical partition	All 128 are Primary
fdisk utility	gdisk utility

Creating partition

cat /proc/partitiions	List current partitions
fdisk /dev/sdb	Create MBR partition on /dev/sdb
gdisk /dev/sdb	Create GPT partition on /dev/sdc

Create File Systems

mkfs.ext4 -b 1024 -L myfs /dev/sdb1	Create ext4 file system w/ myfs label (-L) and 1024Mb size (-b)
mount /dev/sdb1 /mnt; umount /mnt	Mount /dev/sdb1 on /mnt; unmount
mkfs.xfs -L XFSFS /dev/sdb5	Create xfs file system
mount LABEL=-XFSFS /mnt	Mount
mkfs.btrfs -L butter /dev/sdc1	Create btrfs file system

Mount partitions w/ etc fstab

vim /etc/fstab	
/dev/sdb1 /ext4 ext4 defaults 0 0	
LABEL=-XFSFS	Mount by label
mount -a	Mount everything specified in fstab

Create RAID

gdisk *disk*; fd00; partprobe	Create RAID disks
mdadm --create /dev/md0 --level=1 --raid-disks=2 /dev/sdd2 /dev/sde1	Create RAID level 1 from 2 RAID disk
mffs.ext4 /dev/md0	Create file system on RAID
mdadm --detail --scan >> /etc/mdadm.conf	Write the RAID config
mkdir /raid; mount /dev/md0 /raid	Mount RAID to /raid
vim /etc/fstab;	Mount persistently
cat /proc/mdstat	Check the RAID if operational
mdadm --detail /dev/md0	More info about the RAID

Swap Partition

partprobe	
mkswap /dev/sdb6	Create swap file system on /dev/sdb6
free -m	Show current swap
swapon /dev/sdb6	Turn swap on
/etc/fstab	Mounting automatically
swapon -a	

Configure Encrypted Partitions

fdisk /dev/sdb; n; l; w; partprobe	Create the partition
cryptsetup luksFormat /dev/sdb7; YES; pass;	Create encrypted device
cryptsetup luksOpen /dev/sdb7 secret	Open the encrypted partiton to create file system

Configure Encrypted Partitions (cont)

mffs.ext4 /dev/mapper/secret	Create file system on encrypted device
mount /dev/mapper/secret /mnt	Mount the device
vim /etc/crypttab; secret /dev/sdb8	
/dev/mapper/secret /secret ext4 noauto 0 0	

Create LVM

gdisk /dev/sdc; 8e00; w; y; partprobe	Create partition for LVM
pvcreate /dev/sdc4	Create physical volume
vgcreate vgdata /dev/sdc4	Put physical volume in volume group
lvcreate -L 1G -n lvdata vgdata	Create logical volume
lvs	Show current LV
vgs	Show current volume group
pvs	Show current physical volume

LVM volume naming

/dev/mapper; ls -l	List device mapper
/dev/vgdata; ls -l	//

Mount LVM persistently

/dev/mapper/vgdata-lvdata /lvmountpoint ext4 defaults 0 0	Mount in fstab
dmesg | tail	See errors

File System Label & UUID

tune2fs -L lvdata /dev/vdgata/lvdata	Change volume label
blkid	Show UUID for all current file system
etc/fstab/; UUID="...."	Mount it

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LVM Resize	
df -h	Show file system info
gdisk /dev/sdc; partprobe /dev/sdc	Create another partition
vgextend *volumne group name /dev/sdc5	Extend the volume group
lvextend -l +100%FREE -r /dev/vgdata/lvdata	Resize LVM to take 100% free storage

Recover after disk failure	
mdadm --create /dev/md0 -l 5 -x 1 /dev/sdb /dev/sdc /dev/sdd /dev/sde	Create RAID md0 level 5 w/ 1 hot spare (-x)
mdadm --fail /dev/md0 /dev/sdb	Fail a device
mdadm --remove /dev/md0 /dev/sdb	Remove the device from RAID array
mdadm -- /dev/md0 /dev/sde	Add new device to RAID array

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Published 27th September, 2018.
Last updated 27th September, 2018.

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