

Bootloader:

GRUB
GRUB2
LILO
SYSLINUX - Startfähige CDs, USB-Images
ISOLINUX - Erstellt startfähige CDs, Disketten
Isohybrid - Erweiterung für ISOLINUX zum hinzufügen eines MBR für USB
EXTLINUX - Erstellen startfähiger CDs, USB-Sticks für Linux Dateisysteme
PXELINUX - Netzwerkboot von Betriebssystemen
Shim - Zum Aktivieren oder Deaktivieren von UEFI Secure Boot
Systemd-Boot – Erstellen und Ausführen von EFI-Images
U-Boot - Genutzt für Microcontroller & Embedded Systems

<https://unix.stackexchange.com/questions/20385/windows-managers-vs-login-managers-vs-display-managers-vs-desktop-environment>

Display Server:

X-Window
Xorg

XFree86
X11

https://en.wikipedia.org/wiki/Windowing_system

Window Manager:

Kwin
Compiz
Metacity
Windowmaker
FVWM95
twm
Sawfish

<https://de.wikipedia.org/wiki/Fenstermanager>

https://en.wikipedia.org/wiki/Comparison_of_X_window_managers

Display Manager:

SDDM

GDM

LightDm

KDM

XDM

GDM

MDM

https://en.wikipedia.org/wiki/X_display_manager

Desktopumgebungen (Paket aus Window Manager & Display Manager):

KDE

GNOME

LXDE

Xfce

Cinnamon

Mate

https://en.wikipedia.org/wiki/Desktop_environment

https://en.wikipedia.org/wiki/Comparison_of_X_Window_System_desktop_environments

Paketmanagement DPKG / APT (Debian, Ubuntu)	
Kommando	Aufgabe
dpkg	
dpkg --list abc	Pakete suchen, deren Paketbeschreibung abc enthält
dpkg --list	Alle installierten Pakete ermitteln
dpkg --getfiles paketname	Liste aller Dateien des Pakets ermitteln
dpkg --install datei.deb	Paket installieren bzw. aktualisieren
dpkg --configure datei.deb	Paket konfigurieren
dpkg --remove paketname	Paket entfernen
dpkg --purge paketname	Paket vollständig entfernen (auch geänderte Dateien)
apt	
apt update	Metadaten aus den Paketquellen aktualisieren
apt search suchbegriff	Paket suchen
apt show paketname	Infos zu Paket anzeigen
apt list	Alle verfügbaren Pakete auflisten
apt list --installed	Alle installierten Pakete auflisten
apt install name	Paket installieren
apt upgrade	Alle Pakete aktualisieren
apt full-upgrade	Alle Pakete aktualisieren , aber bei Bedarf Pakete deinstallieren
apt remove name	Paket entfernen
apt autoremove	Nicht mehr benötigte Pakete deinstallieren
apt autoclean	Zwischengespeicherte Pakete aus Cache löschen
apt-get	
apt-get update	Metadaten aus den Paketquellen aktualisieren
apt-cache show paketname	Infos zu Paket anzeigen
apt-cache search paketname	
apt-cache policy paketname	
apt-get install name	Paket installieren
apt-get upgrade	Alle Pakete aktualisieren
apt-get dist-upgrade	Alle Pakete aktualisieren , aber bei Bedarf auch neue, abhängige Pakete installieren
apt-get remove paketname	Paket entfernen
apt-get autoremove	Nicht mehr benötigte Pakete deinstallieren
apt-get autoclean	Zwischengespeicherte Pakete aus Cache löschen

Paketmanagement RPM (CentOS, RedHead, Fedora)	
Kommando	Aufgaben
rpm -qf datei	Paket ermitteln, das diese Datei zur Verfügung stellt
rpm -qi paketname	Paketbeschreibung anzeigen
rpm -ql paketname	Liste aller Dateien des Pakets ermitteln
rpm -qc paketname	Liste aller Konfigurationsdateien des Pakets ermitteln
rpm -qa	Informationen zu einem noch nicht installierten Paket ermitteln
rpm -qpl datei.rpm	Alle installierten Pakete ermitteln
rpm -i datei.rpm	Paket installieren
rpm -U datei.rpm	Paket aktualisieren
rpm -V datei.rpm	Paketinstallation überprüfen (verify)
rpm -e paketname	Paket entfernen

Paketmanagement YUM / DNF (CentOS, RedHead, Fedora)	
Kommando	Aufgabe
yum / dnf history	Liste der letzten Yum-Aktionen anzeigen
yum / dnf history info n	Details zur Aktion n ermitteln
yum / dnf repolist	Liste aller Repositories ermitteln
yum / dnf search 'abc'	Pakete suchen, die den Begriff abc in der Paketbeschreibung enthalten
yum / dnf list available 'abc*'	Liste aller verfügbaren Pakete ermitteln,deren Name mit abc beginnt
yum / dnf list installed	Liste aller installierten Pakete ermitteln
yum / dnf check-update	Liste der verfügbaren Updates ermitteln
yum / dnf localinstall datei.rpm	Lokale Paketdatei installieren
yum / dnf install name	Paket installieren
yum / dnf update name	Ein Paket aktualisieren
yum / dnf update	Alle Pakete aktualisieren
yum / dnf grouplist/groupinstall/...	Paketgruppen bearbeiten
yum / dnf remove name	Paket entfernen
yum / dnf module provides pname	Modul zum angegebenen Paket ermitteln
yum / dnf module list --all	Module samt Versionen auflisten
yum / dnf module info mname:n	Details zum Modul anzeigen
yum / dnf module enable mname:n	Modulversion auswählen (ohne Installation)
yum / dnf module disable mname	Versionsauswahl aufheben
yum / dnf module list --installed	Installierte Module auflisten
yum / dnf module install mname:n	Modul installieren
yum / dnf install @mname:n	Modul installieren (Kurzschreibweise)
yum / dnf module remove mname	Modul deinstallieren

Paketmanagement Zypper (OpenSuse)	
Kommando	Aufgabe
zypper repos	Liste aller Paketquellen ermitteln
zypper addrepo uri name	Neue Paketquelle einrichten
zypper refresh	Metadaten der Paketquellen neu einlesen
zypper search abc	Pakete suchen, deren Paketname abc enthält
zypper search -d abc	Pakete suchen, deren Beschreibung abc enthält
zypper info paketname	Informationen zu einem Paket ermitteln
zypper -t package list-updates	Liste aller Updates ermitteln
zypper install name	Paket installieren
zypper -t package update	ausgewählte Pakete aktualisieren
zypper update	Alle Pakete aktualisieren
zypper dup	Distributions-Update durchführen
zypper remove name	Paket entfernen
zypper clean	Zwischengespeicherte Pakete (Cache) löschen

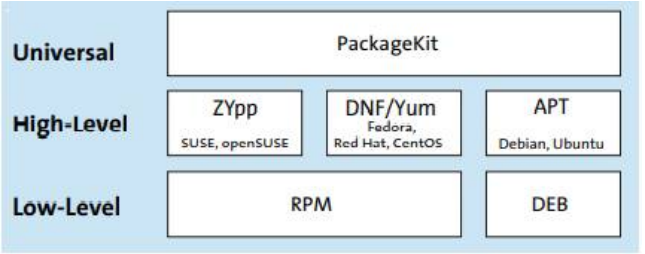


Abbildung 19.1 Low- und High-Level-Paketverwaltungssysteme

Source: Linux-Das-umfassende-Handbuch-für-Anfänger-und-Fortgeschrittene

Benutzer und Gruppen

Name	Linuxname
Besitzer	u
Gruppe	g
Andere	o

Zugriffsrechte für ein Verzeichnis

Aktion	Kommando		Datei	Verzeichnis
In Verzeichnis wechseln	cd	verzeichnisname	–	x
Liste der Dateien ermitteln	ls	verzeichnisname/*	–	r
Dateiinformationen lesen	ls -l	verzeichnisname/*	–	rx
Neue Datei erzeugen	touch	verzeichnisname/ neuer dateiname	–	wx
Datei lesen	less	verzeichnisname/ dateiname	r	x
Vorhandene Datei ändern	cat >>	verzeichnisname/ dateiname	w	x
Datei löschen	rm	verzeichnis/ dateiname	–	wx
Programm ausführen		verzeichnisname/ programmname	x	x
Script-Datei ausführen		verzeichnisname/ scriptname	rx	x

Beispiele

drwxrw---	Verzeichnis = Besitzer (rwx) Gruppe (rw) Andere (-)
760 (chmod)	Verzeichnis = Besitzer (rwx = 4+2+1=7) Gruppe (rw = 4+2+0=6) Andere (- = 0+0+0=0)
u+rwx g+rw	Verzeichnis = Besitzer (rwx) Gruppe (rw) Andere (-)
017 (umask)	Verzeichnis = Besitzer (rwx = 7- 4 - 2 - 1 = 0) Gruppe (rw = 7 -4 -2 0 = 1) Andere (- = 7 -0 = 0)

Zugriffsrechte für Dateien

Zugriffsrecht	Alphanummerische Schreibweise	Gewichtung (chmod / umask)
read	r	4
write	w	2
execute	x	1
setuid	s / S (no x)	4
setgid	s / S (no x)	2
stickybit	t / T (no x)	1

Name

Beschreibung

setuid	Programm wird immer mit den Besitzerrechten ausgeführt
setgid	Verzeichnis oder Datei erhalten immer die Gruppenrechte
stickybit	Es können nur eigene Dateien gelöscht werden / Ausnahme root

A screenshot of the Windows Start menu search interface. The search bar at the top contains the text 'cmd'. Below the search bar, a list of search results is displayed. The results include 'cmd /help /?', 'PowerShell Get-help', 'Dynamic Link Libraries.dll', 'Explorersuche', and 'Windows Sicherung'. Each result is preceded by a small icon representing the application or file type. The background is a light gray, and the search bar has a white background with a magnifying glass icon on the right.

Linux	
Bioschalter, Festplatten und Dateisysteme:	
BIOS	=> Basic Input Output System
UEFI	=> Unified Extensible Firmware Interface
MBR	=> Master Boot Record
GPT	=> Globally Unique Identifier Partition Table
hdparm	=> hard disk parameters set and get
sfdisk	=> scsi disk parameters set and get
nvme	=> nvme storage command line interface utility
sdparm	=> Sdkparam trim and discard unmapd blocks on ssd devices
IDE-Bus: /dev/hz*	
SCSI: /dev/st* SSD / NVME: /dev/nvme0n*	
lsblk	=> list block devices
lshw	=> block device id
sync	=> synchronized and write tempore changes to the disk
tfdisk	=> format disk partition table
gdisk	=> cursor based format disk partition table
parted	=> GUID disk creator
partprobe	=> partition editor
mke2fs mkfs mkswap fsck fsckchk -tc-fstab	=> make file systems => make partitions to filesystems (< Overwrite Partition !) => make SWAP-Date / Partition => file checker
mount umount -Ac-ftab -Ac-mtab procmtabs	=> connect partitions/ portable disks to system read or read-write => disconnect partitions / portable disks from the system
autoifs package (automatic mount)	
ifc-auto.master	
ifc-auto.mountpoints	
Dateisysteme:	
e2fs_l, ext2, ext3, ext4	
resizfs	=> tuneable to filesystem parameters
tune2fs	=> file system debugger
dumpe2fs	=> file system dumper
XFS	
xfs_info	
xfs_tr	
xfs_check	
xfs_repair	
xfs_dump	
xfsrestore	
Brffs-tools package:	
brffs-check	=> brffs file system
brffs-convert	=> convert to Brffs
Fat	
LVM	=> extended FAT
lvcreate -L Logical Volume Manager / Package lvm2 (Kernelmodule dm_mod)	
vgsman -v	
-lscm/racelr cache -lscm/racem conf	
pvcrcrate	=> create physical volume for LVM
vgscreate	=> create volume group of the bottom of the physical volume
mkfs	=> make file systems
resize2fs	=> resize the file systems with current storage
lvreduce	=> reduce the number of the logical volumes
vgsreduce	=> reduce the number of the volume groups
lvcreate	=> create a logical volume
ZFS - Zettabyte File System	
Redundant Array of Independent Disks (RAID) / Internet Small Computer Systems Interface (iSCSI) / Storage Attached Network (SAN)	
hdparm	=> hard disk parameters set and get
sfdisk	=> scsi disk parameters set and get
nvme	=> nvme storage command line interface utility
sdparm	=> Sdkparam trim and discard unmapd blocks on ssd devices
Software-RAID:	
ifc-ftab	
-lscdm/racelr/madm.conf -lscdm/racem	=> configuration file for software raid - racem - examine - scan --no madm.conf
mdadm	=> multiple device administrator manager for raids
Troubleshooting	
kuz/share/mdadmcheck-array (Debian)	=> raid integrity check
-lscdm/diskcheck (RHEL, Fedora, CentOS)	=> raid integrity check
sgdisk	=> clone raid information / partition table of mkr disks to new disk
stupid	=> clone raid information / partition table of gpt disks to new disk
rd_mfod	
RAID-Hexcode - fd	
iSCSI:	
ISCSI - Target:	
iscsi-initiarget - True	
iscsi-target	
targetcli	
ISCSI-Initiator:	
etc/iscsi/initiator.conf - automatic	
iscsidm	=> local administration manager to detect and control to iscsi partitions / disks
scsi_id	=> show scsi information regarding to partitions / disks
Bootmanager	
Bootmanager konfigurieren und installieren:	
GRUB - Legacy (Grand Unified Bootloader Legacy):	
grub-install	
/boot/grub/menu.lst	=> configuration file for grub-legacy
-lscgm/device.map	=> contains the location of the bootloador on the disk
-lscgm	
GRUB - Legacy (Grand Unified Bootloader Legacy) abweisen:	
grub-mkpasswd crypt	=> create password hash to secure bootloador password protected
/boot/grub/menu.lst	=> configuration file for grub-legacy
GRUB 2 (Grand Unified Bootloader 2):	
grub-install / grub2-install	(Debian / RHEL, Fedora, CentOS, OpenSuse)
/boot/grub2/grub.cfg	=> auto configuration file do not edit
-lscgm/grub2/grub.cfg	=> auto configuration file do not edit
-lscgm/grub	=> directory contains configuration files from grub2
-grub-reload / grub2-mkfont	=> file to making changes
update-grub / update-grub2	=> create bootloador configuration file grub.cfg => update bootloador configuration file grub.cfg
GRUB 2 (Grand Unified Bootloader 2) Konfiguration und Menü anpassen:	

	Windows		
	<ul style="list-style-type: none"> - Basic Input Output System - Unified Extensible Firmware Interface - Master Boot Record - Globally Unique Identifier Partition Table 		
		Energieverwaltung	
		acpi dmesg grep -i acpi powerop tip	
		Datum & Zeitensynchronisierung	
		date timedatectl -- Variables cat /etc/timezone Asia/Shanghai Asia/Berlinlocaltime Asia/Berlinlocaltime	
		uptime lscpu	
		hwclock -- hardware clock cat /etc/hwclock.conf cat /etc/default/hwclock	
		nptupdate -- network time protocol date (Online NTP-Serverpool) ntpdate cat /etc/ntp.conf cat /etc/ntp.drift ntp-keygen ntpq	
		chrony -- synchronize time config cat /etc/chrony.conf	
		Systemd-timesyncd.service cat /etc/systemd/timesyncd.conf timedatectl	
		Open NTPD	
		Tastaturlayout:	
		dpkg-reconfigure keyboard-configurator (Debian) cat /etc/default/keyboard	
		localedt list keymaps (RHEL, Fedora, CentOS) localedt set keymaps cat /usr/share/locale/locale.alias cat /etc/sysconfig/keyboard	
		grub2-mkconfig -o boot/grub2/grub.cfg (OpenSuse) cat /etc/sysconfig/keyboard cat /etc/sysconfig/keyboard	
		Schriftart:	
		cat /etc/default/console-setup (Debian) cat /usr/share/doc/console-setup/examples/unicode.conf (RHEL, Fedora, CentOS) cat /etc/sysconfig/keyboard (OpenSuse)	
		Netzwerk Konfiguration / DNS-Konfiguration / Troubleshooting	
		cat /etc/services	
		Netzwerk Konfiguration:	
		Temporäre Netzwerk Konfiguration	
		network-manager nmcli nmtui	
		systemd-networkd (networkctl)	
		ip ifconfig route	
		ifup ifdown ifquery	
		iw iwconfig iwlist iwevent	
		Permanente Netzwerk Konfiguration	
		cat /etc/network/interfaces (Debian) cat /etc/sysconfig/network-scripts/networkcfgname (RHEL, Fedora, CentOS) cat /etc/sysconfig/network-scripts/networkcfgname (OpenSuse)	
		Zeroconf (Apple) / Avahi (Linux)	
		Avahi cat /etc/avahi/avahi-daemon.conf	
		DNS:	
		hostnamectl hostname cat /etc/passwd cat /etc/passwd	
		dig nslookup getent resolvectl	
		Troubleshooting:	
		ping / ping6 traceroute / traceroute6 tcpdump / tcpdump6 arp	
		ss netstat lsof lsof lsof lsof	
		Firewall	
		cat /etc/services	
		Firewalls auf Netfilterbasis	
		Interface Network Protection Tables (/iptables)	
		create bash scripts for iptables firewall using systemctl or systemd syntax	
		iptables -I /iptables iptables-save /iptables-save iptables-restore /iptables-restore iptables-enable	

Linux	Windows
Advanced Configuration and Power Interface	
<p>How long the machine is up since last poweroff</p> <p>Timezones select (view timezones)</p> <p>ntp - daemon</p> <p>Network time protocol query</p> <p>Time and date control</p>	<p>Datum & Uhrzeit</p> <p>Region</p>
<p>Network port function and service information</p> <p>Network manager (default network manager on most distributions)</p> <p>Network manager command line</p> <p>Network manager textual user interface</p> <p>Systemd network manager</p> <p>Configuration of network interfaces / IP address, routes (replacement of ifconfig, route)</p> <p>Network configuration of network interfaces / IP address, routes</p> <p>Routes to the route table of the machine</p> <p>Network interface up / activate</p> <p>Network interface down / deactivate</p> <p>Network interface query / status</p> <p>Network interfaces wireless (replacement of iwconfig)</p> <p>Network wireless configuration</p> <p>Network wireless list</p> <p>Network wireless event</p> <p>Configuration file for the network manager behaviour</p> <p>Configuration file for network settings for network adapters</p> <p>Configuration file for permanent network adapter configuration</p> <p>Configuration file for network adapter for permanent network configuration</p> <p>Configuration file for permanent network adapter for permanent network configuration</p> <p>Network all machines and resources like (file-shares, ssh etc.) also private auto configuration</p> <p>Network configuration file for ssh</p> <p>Network control</p> <p>Network host name</p> <p>Network configuration file for hostname, hostaliases and known hosts</p> <p>Network configuration file for ssh services</p> <p>Network configuration file for authentication databases</p> <p>Network main information proper</p> <p>Network server look up</p> <p>Network set entries (user, group) of a database</p> <p>Network active control of dns</p> <p>Network ping client response of ping packages</p> <p>Network the route of packages taken from an IP network to a host</p> <p>Network path to a network host discovering MTU along this path</p> <p>Network arp information e.g. arp table</p> <p>Network net statistics (new version of netstat)</p> <p>Network work statistics of network connections and open ports</p> <p>Network work control service army knife (unix domain sockets, port scan, simple data transfer)</p> <p>Network the manager for advanced network scans & exploration, security auditing, etc</p> <p>Network sniffer for tcp, udp and icmp packages</p>	<p>Netzwerk und Freigabezentner</p> <p>nslookup</p> <p>C:\Windows\System32\drivers\etc\hosts</p> <p>ipconfig</p> <p>tracert</p> <p>arp</p> <p>ping</p> <p>ping6</p> <p>nslookup</p> <p>netstat</p> <p>Windows-Firewall</p> <p>Driftnet/InterceptSoftware</p>
<p>Network port function and service information</p> <p>Temporary iptable rules regarding of ip version</p> <p>Iptables and or iptables rules to output or file using as firewall configuration</p> <p>Iptables and or iptables from file to firewall using as firewall configuration</p>	<p>Windows-Firewall</p> <p>Driftnet/InterceptSoftware</p>

homeusername/configborg
homeusername/cacheborg
borg create
borg list
borg extract
borg delete
rdiff-backup
rdiff-backup
./home/username/home-backup
duplidity
rsnapshot
rsnapshot.conf
/var/cache/rsnapshot*
/etc/crontab/rsnapshot
Default-Speicherort
Tartarus

Komprimierung / Archivierung:		
tar	=> tape archiver	zip 7zip
gzip	=> g-zipper	
gunzip	=> g-unzipper	
brap	=> less slow zip compression and expand	
bzip2	=> b2-zipper	
bunzip2	=> b2-unzipper	
zip	=> zipper	
unzip	=> unzipper	
zipinfo	=> zipper information	
xz	=> x-zipper	
unxz	=> x-unzipper	
cpio	=> copy files in and out from archives	

Kartierfreiheit:	
Screenreader → Orca Braillezeile Bildschirmlupe Bildschirmastatur Gesten Spracherkennung Eyetracker	Bildschirmlupe Bildschirmastatur Cortana

[illegible]

ISO-Dateien erstellen	
mkisofs	=> ISO Dateisystem erstellen
cdrecord	=> ISO-Dateien auf CD / DVD schreiben
wodim	=> abgespeckte Alternative zu cdrecord

Befehlszeile:		
script	=> startet eine Aufzeichnung, Beenden mit „exit“	Schrittaufzeichnung
setlo passivetex	=> Wandelt Dokumente in HTML-Dokumente um => Wandelt Dokumente in PDF-Dokumente um	
Admindmeldungen: Achtlosae Achtlosae mit Achtlosaf		
web msg n	=> erzeugt eine textbasierte Adminmldung => unterbindet die Anzeige textbasierter Adminmeldungen	
shutdown -k systemctl		

Router	
<pre> telnet/curl.conf telnet/curl.conf telnet/curl.conf </pre>	
Troubleshooting:	
<pre> ping / ping6 traceroute / traceroute6 tracert / tracert6 </pre>	<ul style="list-style-type: none"> ⇒ testing client response of ping packages ⇒ trace the flow of packages taken from an ip network to a host ⇒ traces path to a network host that is carrying MTU along this path ⇒ shows arp information & arp table
ss	⇒ socket statistics (new version of netstat)
netstat	⇒ network statistics of network connections and open ports
netcat -l -p 4444	⇒ network controlled swiss army knife (ports domain sockets, port scan, simple data transfer)
nmcli	⇒ network manager for advanced network scans & exploration, security auditing, etc.
tcpdump	⇒ network sniffer for tcp, udp and icmp packages

Dynamic Host Configuration Protocol (DHCP) Server	
DHCP-Server	
/etc/dhcp3/dhcpd.conf (Debian)	=> configuration file for dhcp server
/etc/dhcp.conf (RHEL, Fedora, CentOS, OpenSuse)	=> configuration file for dhcp server
/var/log/messages	
/var/log/syslog	
/var/log/daemon.log	
Leasvorgang	
/var/lib/dhcp3/dhcpd.leases (Debian)	=> contain dhcp leases of managed clients
/var/lib/dhcpd/leases (RHEL, Fedora, CentOS, OpenSuse)	=> contain dhcp leases of managed clients
/var/lib/dhcpd/leases (Internet System Consortium)	=> contain dhcp leases of managed clients

	<pre> initrd grub.d402_custom. bootgrub402usrn.chg (Optativ) bootgrub402usrn.cyg (RH-EL, Fedora, CentOS, OpenSuse) </pre>	⇒ customized options and boot menu
RUB 2 (Grand Unified Bootloader 2) abstrich:		
	<pre> initrd grub.d402_custom. </pre>	
grub-mkpasswd-pbkdf2		⇒ create password hash to secure bootloader menu
RUB-Module:		
<pre> bootgrub386-pc bootgrub402386-pc </pre>		⇒ contain grub loadable modules ⇒ contain grub loadable modules
insmod mmmod		⇒ install module from driver database to bootloader ⇒ remove module from bootloader
efibootmgr	<pre> bootsetEFInamegrub.cyg bootsetEFInamegrubd4.elf </pre>	
Initiative Bootloader:		
	LILO	
	SYSLINUX	⇒ Startfähige CDs, USB-Images
	ISOLINUX	⇒ Erweitert startfähige CDs, Disketten
	isohybrid	⇒ Erweiterung für ISOLINUX zum hinzufügen eines MBR für USB
	EXTLINUX	⇒ Erstellen startfähiger CDs, USB-Sticks für Linux Betriebssysteme
	PRELINUX	⇒ Netzwerkboot von Betriebssystemen
	System-Boot	⇒ Zum Laden oder Debuggen von UEFI Secure Boot
	U-Boot	⇒ Erstellen und Ausführen von UEFI-Images ⇒ Genutzt für Microcontroller & Embedded Systems
ntldr (Initial ram disk):		
rebian:		
Minitransfs	<pre> initrdtransfs=tools/transfs.conf initrdtransfs=tools/transfs.conf at initrdtransfs=tools/mktransfs* </pre>	⇒ make initial ram file system ⇒ configuration file ⇒ directory contains modules to create initial ram file system
update-initrands		⇒ update initial ram file system
initramfs mkinitramfs		⇒ list content of initial ram file system image ⇒ understand make initial ram file system
HEL-, CentOS, Fedora, OpenSUSE		
dracut	<pre> initrdinitramfs.conf </pre>	
mkinitrd (CentOS, OpenSUSE)	<pre> mkinitrdconfig </pre>	
ntldr (initial ram disk) manuell modifizieren:		
bootsect.img	⇒ entpacken, Konfiguration anpassen, mit cpio wieder packen	

Linux – Update – system – Process	
<pre>Shutdown reboot halt = shutdown h</pre>	<ul style="list-style-type: none"> ⇒ shutdown the system compatible with systemd and systemd ⇒ reboot the system compatible with systemd and systemd ⇒ stop the system compatible with systemd and systemd
Systemd-Process (System-Five):	
<pre>initrd initrd-cmdline initrd-cmdline initrd-cmdline</pre>	<ul style="list-style-type: none"> ⇒ first / mother process ⇒ use configuration file - installing <code>etc-cdr/c</code> or <code>etc/cdr/c</code> script ⇒ configuration file for services / necessary
<pre>initrd-cmdline initrd-cmdline initrd-cmdline</pre>	<ul style="list-style-type: none"> ⇒ related init configuration file and change system runlevel ⇒ shows current system runlevel and the system runlevel before ⇒ change the system runlevel
Runlevel konfigurieren:	
<pre>initrd-cmdline (Debian) initrd-cmdline (OpenSuse) initrd-cmdline (Fedora, CentOS)</pre>	<ul style="list-style-type: none"> ⇒ defined services for the different runlevels ⇒ defined services for the different runlevels ⇒ defined services for the different runlevels
<pre>update -rfd (Debian) initrd-cmdline (OpenSuse) initrd-cmdline (Fedora, CentOS)</pre>	<ul style="list-style-type: none"> ⇒ change services for runlevels ⇒ change services for runlevels ⇒ change services for runlevels
etc/passwd:	
<pre>initrd-cmdline (Debian) initrd-cmdline (OpenSuse) initrd-cmdline (Fedora, CentOS)</pre>	<ul style="list-style-type: none"> ⇒ boot script for general settings (clock, mounts, troubleshooting etc) ⇒ boot script for general settings (clock, mounts, troubleshooting etc) ⇒ boot script for general settings (clock, mounts, troubleshooting etc)

servicescripts:		
/etc/init.d*	(Debian, OpenSuse)	=> scripts to configure services status
/etc/rc.d/init.d*	(RedHat, Fedora, CentOS)	=> scripts to configure services status

Upstart-Prozess:	
<code>/etc/init/*.conf</code>	=> contains the runlevel configuration files for the services
<code>initctl</code>	=> init control for interacting with the upstart process

Systemd-Process:	
Unit-Datenbank:	
<code> systemctl status systemd-journald.service systemctl status libsystemd-journald.service systemctl status libsystemd-journald.service (OpenSUSE)</code>	<ul style="list-style-type: none"> ⇒ contain configuration files e.g. <code>example.service</code> or <code>example.target</code> or <code>example.socket</code> ⇒ dynamically created system unit ⇒ distribution specific configuration file e.g. <code>example.service</code> ⇒ distribution specific configuration file e.g. <code>example.service</code>
<code> systemctl status systemd-logind.service</code>	<ul style="list-style-type: none"> ⇒ system control for systemd services and targets (runlevels) ⇒ system control of systemd services and targets into the user environment ⇒ login control of systemd shows sessions controlled by systemd
<code> systemctl get-default systemctl isolate runlevelname systemctl run</code>	<ul style="list-style-type: none"> ⇒ show the current runlevel of the system ⇒ change current runlevel into the runlevel you want
Unit-Datenbank erstellen:	
<code> systemctl cat systemd-journald.service</code>	<ul style="list-style-type: none"> ⇒ create configuration file <code>example.service</code> or directory <code>example.target</code> or <code>example.socket</code>
Unit-Datenbank installieren:	
<code> systemctl cat systemd-journald.service systemctl cat systemd-journald.service (OpenSUSE)</code>	<ul style="list-style-type: none"> ⇒ create configuration file <code>example.service</code> or directory <code>example.target</code> or <code>example.socket</code> ⇒ vet scripts compatible with systemd manager with tabs label ⇒ show available units with the status

kernel & Module	
errekmodulare laden, entenden und Informationen auslesen:	
<pre>#!/bin/sh cat \$(proc/modules) </pre>	
kmod	=> kernel modules auto loader
<pre>echo \$(proc/modules) echo \$(proc/modules) </pre>	=> contain kernel module configuration files
insmod	=> loading in module
rmmod	=> remove loaded module
modprobe	=> module problem resolver for dependencies modules
<pre>#!/bin/sh echo \$(proc/modules) echo \$(proc/modules) </pre>	=> configuration file for loading drivers of the kernel for the system
sysctl	=> system control for customized kernel parameter settings
<pre>#!/bin/sh </pre>	=> configuration file storing configured kernel parameter settings

Netfilter Tables (ntables):	
<code>/etc/iptables.conf</code>	=> default configuration file for iptables
<code>nft</code>	=> netfilter tables (replacement of iptables)
<code>nft-list</code>	
<code>nft-export</code>	
Distributionsspezifische Firewalls / Higher Level Table Interpreter	
Firewall Daemon (firewall) (RHEL, Fedora, CentOS, OpenSuse)	
<code>/etc/iptables*</code>	=> configuration files for firewall rules
<code>/usr/lib/iptables*</code>	=> configuration files for firewall rules
<code>/etc/sysconfig/network-scripts*</code>	=> networkcard configuration file to include firewall zone rules
<code>/etc/firewalld/etcnet.xml</code>	=> configuration file to include ipset rules in firewall
firewall-cmd	=> firewall command line for temporary and persistent firewall rules
firewall-config / YaST-Module	=> graphical user interface for firewall (YaST-Module OpenSuse)
Uncomplicated Firewall (UFW) (Ubuntu)	
<code>/etc/app*</code>	=> configuration files for application rules e.g applications.d
<code>/etc/ufw/config.sh</code>	=> configuration file for ufw
<code>/lib/ufw/user.rules / user.rules</code>	=> contain user rules specific rules
ufw	=> uncomplicated firewall
gufw	=> graphical interface for universal firewall
Alternativen	
pfSense	
Firewall Builder	

System configuration:	
tail -f	
dmesg dmesglog	=> detect and show kernel ring buffer messages
logrotate etc/logrotate.conf etc/cron.daily/logrotate.sh	=> compress and rotate logfiles => default configuration file => contains specific settings for programs using logrotate
logger	=> enter messages into the system log
Systemd – Journal	
journald etc/systemd/journal.conf etc/systemd/journal.conf.d/* var/lib/systemd/journal.conf.d/* var/log/journal	=> journal control => configuration file for log files => contain log messages
systemctl cat var/lib/systemd var/log/messages var/log/boot.log var/log/journal	=> To view the journal database => contain log messages
System Logging Daemon (syslogd)	
/etc/syslog.conf etc/default/syslogd var/lib/syslog (Debian) var/log/messages (Fedora, Fedora, CentOS, OpenSUSE) var/log*	=> configuration file for the system logs also for forwarding to central log server => enhanced configuration file for getting network logs from other servers => bidder for syslog logs for all services
Rocket-fast system log for processing (rsyslog) (default Debian, RHEL, Fedora, CentOS, OpenSUSE)	
/etc/rsyslog.conf etc/rsyslog.d/rsyslogd.conf	=> configuration file for log files => configuration file for remote log database
Syslog new generation (syslog-ng)	
/etc/syslog-ng/syslog-ng.conf	=> configuration file for log files
Logwatch	
logwatch usr/share/logwatch/default.conf usr/share/logwatch/tailor.conf etc/default/logwatch.conf/services* etc/logwatch*	=> customizable log analysis system => default configuration settings for sending logging information via mail => global default settings => default configuration settings for services => customized configuration for services
Logsurfer – process logfiles and perform certain actions	
smartmontools package: (Self-Monitoring, Analysis and Reporting Technology)	
smartctl – SMART Control smartd – SMART Daemons etc/default/smartmontools etc/smartd.conf	
cockpit (Web-Monitoring Tool)	

Paketmanager:	
Debian	⇒ <code>dpkg, apt, apt-get, apt-cache search</code>
RedHat, Fedora	⇒ <code>rpm, yum</code>
Open Suse	⇒ <code>zypper</code>
Flatpak	
Snap	
Dritterstellersoftwareseiten (Kompilierung)	

Softwarekompileierung	
wget	⇒ website get content
ls -lsrc ls -lsrc/linux/Documentation ls -lsrc/linux/arch/86/boot/bzImage	
Speicherort:	
ls -lsrc -	• Mögliches Verzeichnis zum entpacken von Softwareprogrammdateipaketen / Default-Installationsort für kompilierte Software
tar -xvzf	⇒ tape archiver
gunzip	⇒ gunzipper
bunzip2	⇒ bz2-unzipper
unxz	⇒ xz-unzipper
unzip	⇒ unzipper
configure / ./configure	⇒ create the makefile for the software
make	⇒ make / built the linux program with the makefile (compiling)
make install	⇒ make install the compiled software to the system

Zurechnungsverwaltung (Autorisierung)	
id groups is	<ul style="list-style-type: none"> => show user id (uid) or group id (gid) of the current user => show group memberships of the current user => list file directories and other important informations
Benutzerverwaltung	
userid recuserid rechshadow userid newgrp chown	<ul style="list-style-type: none"> => add new user or system - user to the system => user modification e.g. new group membership and user settings => user delete => new group membership which means change temporarily primary with secondary group => change ownership and / or group membership of the file or file hierarchy
Grunderkenntnisse	AGDI P. INTER. 3.C1, ShareFileServer

Nginx-Webserver:	
<code>/etc/nginx/nginx.conf</code>	=> default configuration file
<code>/etc/nginx/sites-available/</code>	=> available sites (virtual hosts)
<code>/etc/nginx/sites-enabled/</code>	=> links to sites available as activated virtual host websites
Virtual Hosts Konfiguration	
add «server» section into distribution configuration files for virtual hosts	
<code>/etc/nginx/sites-available/</code>	=> available sites (virtual hosts)
<code>/etc/nginx/sites-enabled/</code>	=> links to sites available as activated virtual host websites
Webserver Erweiterungen	
GoAccess (Webseitenstatistiken)	
goaccess => go to access to log files (read and display logs/entries in terminal or via html file)	
ModSecurity (Web Application Firewall / WAF / Websicherheitsfilter)	
<code>/etc/modsecurity/</code> (Debian)	=> configuration files
<code>/etc/modsecurity.d/</code> (RHEL, Fedora, CentOS)	=> configuration files
Webalyzer (Websicherheitsfilter)	
webalyzer => web log analyzer to display graphical log results	
Proxy-Server	
Squid Cache-Proxy:	
<code>/etc/squid.conf</code>	=> configuration file for squid services and access control e.g proxy, application level gateway
<code>/etc/squid3.conf</code>	=> configuration file for squid services and access control e.g proxy, application level gateway
<code>/var/log/squid</code>	
squid	
Squid Cache Statistiken	
telnet - GET cache_object:localhostinfo HTTP/1.0	
Squid Application Level Gateway	
<code>/etc/squid.conf</code>	=> configuration file for squid services and access control e.g proxy, application level gateway
Squid Firewall Preferenz (verstärkte ausgehende Verbindung über HTTP / HTTPS verhindern)	
<code>/etc/squid.conf</code>	=> configuration file for squid services and access control e.g proxy, application level gateway
ACL-Listen:	
<code>http://localhost:3128/req?reqid=»Name«</code>	
Alternativen	
Fitter Pound Privacy Tinyproxy	

Datenserver (Samba / NFS)	
Samba-Server (selbstständiger Datenserver mit Windows-Kompatibilität):	
Daemons: smbd nmbd winbindd	
SAMBA-Server Konfiguration:	
<code>/etc/samba/smb.conf</code> (Debian)	=> default configuration file
<code>/etc/smb.conf</code> (RHEL, Fedora, CentOS)	=> default configuration file
<code>/etc/samba/ntpasswd</code>	=> old samba internal user and password smb database if ldap not exist
<code>/var/lib/samba/private/passdb.tdb</code>	=> new samba internal user and password smb database if ldap not exist
<code>/etc/sambalusers.map</code>	=> database for aliases windows-user to linux-user
<code>/var/log/samba/log.smbd / log.nmbd</code>	
<code>testparm / testparm -v</code>	=> test parameter of the configuration file
<code> smbstatus / net status share</code>	=> show samba status information of the current version
<code> smbpasswd</code>	=> send commands to samba daemons
<code> smblookup</code>	=> create samba account and password
<code> getfacl / setfacl</code>	=> shows dns information of specific client / server
<code> smbclient</code>	=> shows shared folders and other informations
<code> smbtree</code>	=> shows all windows and samba servers with their shared folders and objects
<code> winbind</code>	
Migiert im Active Directory:	
<code>/etc/samba/smb.conf</code>	
<code>/etc/smb.conf</code>	
SAMBA-Client:	
<code> smbclient</code>	shows shared folders and other informations
<code> smbtree</code>	shows all windows and samba servers with their shared folders and objects
<code> smbmount</code>	simple mount of a smb filesystem
Server Message Block (SMB):	
Datenmanager - <code>Step + L - smb://servername / verzeichnisname /</code>	
Common Internet File System (CIFS) - Legacy SMB1:	
<code> mount -t cifs</code>	
Windows:	
<code> 1 hostname\sharename\</code>	
SAMBA-Domänencontroller:	
samba-tool	
SAMBA Domänencontroller installieren und konfigurieren:	
samba-tool domain provision	
<code>/var/lib/samba/private/ldb.conf</code>	=> kopieren nach /etc für Kerberos-Authentification
<code>/etc/samba/ldb.conf</code> (Debian)	=> configuration file
<code>/var/lib/samba/private/ldb.conf</code>	=> system file for group policy database
samba-tool ds tcc -k yes - replication by two or more domain controllers	
samba-tool ds showwpl	
samba-tool ds replicate	
samba-tool tsmo show	
show domain controller roles	
Eigenständiger DNS Bind9 konfigurieren:	
<code>/etc/bind/named.conf.options</code>	
<code>/etc/bind/named.conf.local</code>	
Zielserver installieren und konfigurieren:	
<code>/etc/nfs.conf</code>	
<code>/var/lib/samba/nfs_signd</code>	
Domänencontroller Replikation sysvol:	
<code>/etc/netsd.d</code>	

Sar (system activity information reporter (cpu, memory, disk, network etc.)	
sar	
<code>sa1</code>	=> system activity information reporter (cpu, memory, disk, network etc.)
<code>sa2</code>	=> system activity planner for cronjob starting - sa2c
<code>sa3</code>	=> system activity collector in binary format of cronjob - sa1
<code>sa4</code>	=> system activity converter of collected data from sa2c into human readable code
<code>sa5</code>	=> system activity data collection file to graph or multiple file converter
Netzwerk Monitoring Tools	
<code>netstat</code>	=> network statistics
<code>ss</code>	=> show sockets and network statistics
<code>ipstat / ipstat-ng</code>	=> ip traffic statistics / ip traffic statistics new generation
Monitoringdatensammlung Tools:	
collectd (The system statistic collection daemon collecting data for monitoring programs)	
<code>/etc/collectd/collectd.conf</code>	=> configuration file
<code>/var/lib/collectd/</code>	=> default safe path for logging files
Monitoringdatenhaltung Tools:	
<code>rrdtool</code>	=> round-robin database tool stores collected statistic data into his database
Monitoring Tools zur Darstellung:	
Cacti (The complete rrd-tool based graphing solution):	
<code>http://localhost/cacti</code>	=> weblink to the admin website
MRTG (multi router traffic graph with rrd-tool)	
<code>cfgmaker</code>	=> configuration file maker /etc/mrtg.cfg
<code>indexmaker</code>	=> create index.html file for mrtg admin website
<code>/var/www/mrtg/index.html</code>	=> html admin website
<code>/etc/mrtg.cfg</code>	=> configuration file
<code>http://localhost/mrtg</code>	=> weblink to the admin website
Nagios (network nagios / Nagios Ain't Gonna Insist On Sainthood)	
<code>http://localhost/nagios3</code>	=> weblink to the admin website
Naemon (Nagios Fork / Thrux)	
<code>http://localhost/thru/</code>	=> weblink to the admin website
<code>/etc/naemon/naemon.cfg</code>	=> default configuration file
<code>/etc/naemon/conf.d/*</code>	=> configuration files
<code>/etc/thru/</code>	=> configuration file for admin-website
Isings (Zulu word for „it examines“)	
Munin	
Check_MK	

Virtualisierung Containering:	
VirtualBox VMware Workstation Vagrant	VirtualBox VMware Workstation Vagrant
VMware vsphere ESXi XEN Redhat Enterprise Virtualization	Hyper-V Docker VMware vsphere
Chroot	
Kernel based Virtual Machine (KVM) => linux specific virtual technology for server distributions	
<code>/dev/virt</code>	
<code>/etc/libvirt/*</code>	=> default configuration files
<code>/var/run/libvirt/vsock</code>	=> default directory to administrate with virtual commands / group libvirt
<code>/var/lib/libvirt/images</code>	=> default directory for virtual machine disks
<code>/var/lib/libvirt/iso9660</code>	=> default directory to save virtual machine status (snapshots)
<code>/etc/default/libvirt-guests/</code> (Debian)	=> configuration files for virtual guests
<code>/etc/sysconfig/libvirt-guests/</code> (RHEL, Fedora, CentOS, OpenSuse)	=> configuration files for virtual guests
Starten von virtuellen Maschinen	
<code>kvm</code> (Debian)	
<code>/usr/libexec/qemu-kvm</code> (RHEL, CentOS)	
<code>qemu-kvm</code> (Fedora, OpenSuse)	
Konfiguration von virtuellen Maschinen	
<code>virt-top</code>	=> virtual table of processes for kvm and xen
<code>virt-view</code>	=> virtual display view of a machine
<code>virt-manager</code>	=> virtual graphical manager for kvm and xen
<code>virtsh</code>	=> virtual secure shell for kvm and xen
<code>virtclone</code>	=> virtual machine cloning
Docker	
<code>docker run</code>	=> create docker container and run it immediately
<code>docker start</code>	=> start available docker container
<code>docker stop</code>	=> stop available docker container
<code>docker rm</code>	=> docker container remove
<code>docker exec</code>	=> starts «n» process into docker container
<code>docker ps</code>	=> docker processes currently running
<code>docker volume</code>	=> administrate docker container shared volumes
<code>docker volume ls</code>	=> docker container shared volume list
<code>docker rm -v</code>	=> delete docker container and container linked shared volume
<code>docker volume rm</code>	=> delete docker container shared volume with specific id-number
<code>docker volume prune</code>	=> delete all not linked container shared volumes
<code>docker inspect</code>	=> show configuration and status of docker container
<code>docker logs</code>	=> docker container log information of running services

Remoteverbindungen	
Vorläufer Remoteverbindungen:	
Telnet/Network (Telnet) RSH Rlogin	
Remotedesktops:	
<code>xhost</code>	
<code>/etc/X11/Xorg.conf</code>	
<code>/etc/X11/Xorg.conf.d</code>	
DISPLAY Variable	
XIMCP	
VNC	
XRDp	
SRCE	
Secure Shell (SSH)	
SSH-Server:	
<code>/etc/ssh/sshd_config</code>	
<code>/etc/sshman/sshauthorized_keys</code>	
<code>/etc/ssh/ssh-keygen</code>	
<code>/var/log/ssh.log</code>	
SSH-Client:	

gpg-gen-key	
<code>-gpgkey</code>	
<code>gpgconf</code>	
<code>gpg - encrypt</code>	
<code>gpg - decrypt</code>	
<code>gpg - detach-sign</code>	
<code>gpg - verify</code>	
<code>gpg - gen-revoke</code>	
<code>gpg - import</code>	
<code>gpg - agent - default-cache-ttl</code>	
Erweiterte Dateiberechtigungen	
<code>ulimit</code>	=> unit limit process limit by using hardware resources
<code>/etc/security/limits.conf</code>	
POSIX Access Control Lists (ACLs)	
<code>gpg -i act /boot/coreimg*</code>	=> show if act feature is available on the kernel version
<code>ls -ld /boot/coreimg*</code>	=> show if act is the default mount option
<code>lsattr</code>	=> enhanced mount options with rw, errors=remount, act
getfacl	
<code>setfacl</code>	=> get the current permissions overview including inherited access control list
<code>setfacl -R</code>	=> set access control list rules also default access control list rules
POSIX Access Control Lists (ACLs) Backups	
<code>getfacl R (path no laci-file-hierarchy > actbak</code>	
<code>setfacl - restore = actbak</code>	
Erweiterte Dateisubstanz	
<code>lsattr</code>	=> enhanced mount options with rw, errors=remount, user_sattr
<code>lsattr</code>	=> list file attributes which are set
<code>getfacl</code>	=> get extended file attributes
<code>setfacl</code>	=> set extended file attributes
<code>chattr</code>	=> change file attributes
Erweiterte Dateiberechtigung / Dateiberechtigung (Capabilities)	
<code>getcap</code>	=> get the capabilities / special user permissions for the file
<code>setcap</code>	=> set file capabilities / special user permissions for the file
Quotas / Journalmed-Quotas	
<code>lsattr</code>	=> enhanced mount options with usrgroups, gpgquota, gpgquota=aquota.user, gpgquota=aquota.group, jfslnvld (Journalmed-Quotas)
<code>quotacheck</code> (Debian)	=> activate disk quota
<code>quotad</code> (Debian)	=> enable disk quota - command is needed for the first time starting initialising as next step
<code>quotacheck</code> (Debian)	=> initialising process for disk quotas
<code>systemctl start systemd-quotacheck (OpenSuse, RHEL, Fedora, CentOS)</code>	=> initialising process for disk quotas
<code>edquota</code>	=> set user and group quotas for partitions and also grace period
<code>repquota</code>	=> report quotas settings for user and groups
Pluggable Authentication Modules (PAM) Authentifizierung:	
<code>lsid (path /usr/bin)</code>	=> show dependencies also pam packages
<code>/etc/security/*</code>	=> configuration files for specific pam modules also for software modules
<code>/etc/pam.conf</code>	=> default configuration if /etc/pam.d/ not exist
<code>/etc/pam.d/*</code>	=> configuration files for services using pam (e.g. samba)
<code>/etc/pam.d/other</code>	=> used for services which has not a configuration in /etc/pam.d/
<code>authconfig / authselect</code> (RHEL, Fedora, CentOS)	=> used to change files under /etc/pam.d/*
<code>/lib/security/</code>	stores PAM Modules which are shared libraries that provides functions
PAM - Authentifizierung mit System Security Services Daemon (SSSD):	
<code>/etc/sss/sss.conf</code>	configuration file
<code>/etc/sss/switch.conf</code>	configuration file for authentication databases
Name Service Switch (nss)	
<code>/etc/switch.conf</code>	configuration file for authentication databases
Name Service Caching Daemon (nscd)	
<code>/etc/nscd.conf</code>	caching authentications for ldap, samba etc. if needed
Chroot / SELinux / AppArmor	
chroot	
add specific chroot entry into configuration files of the services	
AppArmor (Default Debian, OpenSuse):	
<code>/etc/apparmor.d/</code>	directory for apparmor service profiles
aa-status / apparmor.status	
shows status of apparmor and loaded profiles	
aa-enforce	
profile rules are mandatory	
aa-complain	
only logs issues which are different to the profile rules	
aa-unconfined	
shows services which haven't a apparmor profile yet	
<code>lschroot.d/apparmor</code>	
entload the apparmor profiles - deactivate	
AppArmor Profile erstellen:	
Aa-gprof servicename - using the service as normal use - key 5 for scan dependencies - Choose include files and permissions / behaviour - safe profile with key 5	
aa-logprof	
scan service and dependencies again and provides new choosing of includes, Permissions / behaviour	
SELinux (Default RHEL, Fedora, CentOS):	
<code>/etc/selinux/config</code>	configuration file for selinux module
<code>/etc/selinux/*</code>	contains rules for every service using selinux
<code>sestatus</code>	shows current configuration status of selinux
ls -Z / getfacl -n security.selinux -d filename	
shows security informations of a file for selinux	
ps aux grep servicename	
shows security context of a service	
<code>restorecon -R</code>	
change content to the right one using selinux	
<code>chcon R</code>	
change attribute content from selinux to the right direction	
getsebool -a	
shows all boolean values for selinux	
<code>setsebool -P servicename booleanname booleanvalue</code>	
set boolean value for the selinux value	
system-config-selinux	
graphical program to change boolean values for selinux	
SELinux Alert (psalt)	
LANG="seclat -a varlog/audit.log	
troubleshooting program to search audit.log for selinux issues	
FalZban - Intrusion Prevention Software Framework Prevent Brute Force Attacks	
<code>/etc/fail2ban/fail2ban.conf</code>	=> global settings for fail2ban
<code>/etc/fail2ban/jail.conf</code>	=> default settings for jails and changer
<code>/etc/fail2ban/jail.local</code>	=> copy of jail.conf / customized settings file for the services
<code>/etc/fail2ban/filter.d/*</code>	=> contains filter rules
<code>/etc/fail2ban/action.d/*</code>	=> contains actions to take if rules are triggered
<code>/var/log/fail2ban.log</code>	
iptables -L -n	
=> shows activated rules	
<code>fail2ban-client</code>	=> check ban status and set ban status of specific clients to false if it blocks wrong
<code>fail2ban-server</code>	
fail2ban-regex	
=> check own created rules of regular expression rules for control of right functionality	

Linux	Windows
DNS:	
host /etc/hosts /etc/resolv.conf /etc/nsswitch.conf dig nslookup	nslookup C:\Windows\System32\drivers\etc\hosts
Libraries:	
Shared Libraries.so ldd ldconfig	Dynamic Link Libraries.dll
Paketmanager:	
Debian → dpkg, apt-get, apt RedHat, Fedora → rpm, yum open suse → zypper Drittherstellersoftwareseiten	Windows Store, Drittherstellersoftwareseiten
Virtualisierung:	
chroot Docker VMware vSphere ESXi XEN KVM RedHat Enterprise Virtualization	Hyper-V Docker VMware vSphere
Kommandozeilen:	
bash csh tcsh zsh ksh rsh	DOS CMD PowerShell
Prozessmanager:	
top ps pstree kill pkill killall watch fg bg nice renice jobs	Taskmanager Prozessmonitor Dienste
Speicherauslastung Festplatte / Arbeitsspeicher:	
free du df lsblk blkid	Taskmanager Datenträgerverwaltung
Komprimierung / Archivierung:	

Die Tabelle darf frei geteilt und vervielfältigt werden.
Der Urheber der Tabelle muss allerdings zu jederzeit ersichtlich sein:

Urheber: Lars Kammerer
Ersterstellung: 10.09.2020

tar gzip bzip2 xz	zip 7zip
Drucker:	
Cups /etc/cups /etc/cups/cupsd.conf lpc lp lpr /var/spool lpq lprm	Spooler
Manpages:	
Bash man which whatis whereis	cmd /help /? PowerShell Get-help
Backup:	
dd od	Windows Sicherung
Texteditoren:	
vi vim nano	Editor
Berechtigungsverwaltung	
ls useradd usermod chown newgrp userdel passwd shadow groupadd groupmod chgrp groupdel gshadow chmod umask ldap	Windows Active Directory Lokale Benutzerverwaltung Gruppenrichtlinien AGDLP (NTFS, ACL, SharedFolders) Ldap
Aufgabenverwaltung:	
systemd-run at atq atrm systemd.timer crontab OnCalendar jobs	Aufgabenplanung
Datum & Zeiteinstellung:	
date	

TZ-Variable tzselect timedatectl hwclock ntpdate ntpq ntpdc chrony uptime	Datum & Uhrzeit Region
Systemprotokollierung:	
rsyslog /etc/rsyslog.conf /etc/rsyslog.d journalctl /etc/systemd/journald.conf /var/log/journal tail -f logrotate logger Systemd-cat /var/log/syslog /var/log/messages	Ereignisanzeige Gruppenrichtlinien
Gerätemanagement:	
udev lspci lsusb acpid	Gerätemanager
Netzwerkconfiguration / Troubelshooting	
/etc/services hostnamectl hostname /etc/hosts /etc/resolv.conf /etc/nsswitch.conf nmcli ifconfig Systemd-networkd ifup ifdown ping ping6 route traceroute traceroute6 tracepath tracepath6 ip netstat ss netcat /nc /ncat	ipconfig tracert arp ping ping6 nslookup netstat
Remotedesktop:	
xhost /etc/X11/xorg.conf /etc/X11/xorg.conf.d DISPLAY Variable XDMCP VNC	Remotedesktop (RDP) Admincenter ssh

XRDp ssh SPICE	
Barrierefreiheit:	
Screenreader → Orca Braillezeile Bildschirmlupe Bildschirmstatur Gesten Spracherkennung Eyetracker	
Such & Filterwerkzeuge:	
type which whatis whereis locate find grep pgrep cat bzcat xzcat zcat head tail cut paste sort uniq wc tr sed nl	Explorersuche
Datei & Verzeichnisverwaltung:	
mkdir rmdir touch cp mv rm file ls ln	NTFS Datei und Verzeichniskonzept → Explorer
Boot & Dateisysteme:	
BIOS UEFI MBR GPT fdisk gdisk parted mkfs mk2fs	

mkswap fsck ext1 ext2 ext3 ext4 XFS xfs_repair xfs_db xfs_fsr btrfs Fat ExFat LVM	BIOS UEFI MBR GPT NTFS ReFs FAT32 ExFAT
Bootmanager-Kernmodule-init-Startverhalten	
grub-install grub-mkconfig lsmod uname insmod rmmod modprobe initramfs dmesg SysVinit: /etc/inittab /etc/init.d telinit runlevel dmesg Systemd: /etc/systemd /usr/lib/systemd dmesg systemctl journalctl	
Sicherheit	
su sudo /etc/sudoers /etc/group w+Entertaste /var/run/utmp who last /var/log/wtmp /var/log/btmp find / -perm ulimit lsof fuser	

```
cron
nmap
netstat
socket

inetd
/etc/inetd.conf
/etc/init.d
/etc/inittab
xinetd
/etc/xinetd.conf
/etc/xinetd.d
/etc/systemd/logind.conf

/etc/hosts.allow
/etc/hosts.deny

systemd.socket
/etc/systemd/system/sockets.target.wants
/etc/nologin

putty
ssh
/etc/ssh/sshd_config
/etc/ssh/ssh_config
/etc/hosts.allow
/etc/hosts.deny
/etc/nologin
~/ssh/known_hosts
/etc/ssh/ssh_known_hosts
ssh-keygen
ssh-copy-id
ssh-add

gpg --gen-key
~/gnupg
gpg.conf
gpg --encrypt
gpg --decrypt
gpg --detach-sign
gpg --verify
gpg --gen-revoke
gpg --import
gpg-agent → default-cache-ttl
```


Linux	Windows
Kommandozeilen:	
bash csh tcsh zsh ksh rsh	DOS CMD PowerShell
Texteditoren:	
vi vim nano	Editor
Manpages:	
Bash man which whatis whereis	cmd /help /? PowerShell Get-help
Backup:	
dd od	Windows Sicherung
Libraries:	
Shared Libraries.so ldd ldconfig	Dynamic Link Libraries.dll
Such & Filterwerkzeuge:	
type which whatis whereis locate find grep pgrep cat bzip2 xzcat zcat head tail cut paste sort uniq wc tr sed nl	Explorersuche
Boot & Dateisysteme:	

Die Tabelle darf frei geteilt und vervielfältigt werden.
Der Urheber der Tabelle muss allerdings zu jederzeit ersichtlich sein:

Urheber: Lars Kammerer
Ersterstellung: 10.09.2020

BIOS	
UEFI	
MBR	
GPT	
fdisk	
gdisk	
parted	
mkfs	
mk2fs	
mkswap	
fsck	BIOS
	UEFI
	MBR
ext1	GPT
ext2	NTFS
ext3	ReFs
ext4	FAT32
XFS	ExFAT
xfs_repair	
xfs_db	
xfs_fsr	
btrfs	
Fat	
ExFat	
LVM	
Bootmanager-Kernmodule-init-Startverhalten	
grub-install	
grub-mkconfig	
lsmod	
uname	
insmod	
rmmod	
modprobe	
initramfs	
dmesg	
SysVinit:	
/etc/inittab	
/etc/init.d	
telinit	
runlevel	
dmesg	
Systemd:	
/etc/systemd	
/usr/lib/systemd	
dmesg	
systemctl	
journalctl	
Gerätemanagement:	
udev	
lspci	Gerätemanager
lsusb	
acpid	
Speicherauslastung Festplatte / Arbeitsspeicher:	
free	

du	
df	Taskmanager
lsblk	Datenträgerverwaltung
blkid	
Prozessmanager:	
top	
ps	
pstree	
kill	
pkill	Taskmanager
killall	Prozessmonitor
watch	Dienste
fg	
bg	
nice	
renice	
jobs	
Netzwerkconfiguration / Troubelshooting	
/etc/services	
hostnamectl	
hostname	
/etc/hosts	
/etc/resolv.conf	
/etc/nsswitch.conf	
nmcli	ipconfig
ifconfig	tracert
Systemd-networkd	arp
ifup	ping
ifdown	ping6
ping	nslookup
ping6	netstat
route	
traceroute	
traceroute6	
tracepath	
tracepath6	
ip	
netstat	
ss	
netcat /nc /ncat	
DNS:	
host	
/etc/hosts	nslookup
/etc/resolv.conf	C:\Windows\System32\drivers\etc\hosts
/etc/nsswitch.conf	
dig	
nslookup	
Datum & Zeiteinstellung:	
date	
TZ-Variable	
tzselect	
timedatectl	
hwclock	Datum & Uhrzeit
ntpdate	Region
ntpq	

ntpd
chrony
uptime

Systemprotokollierung:

rsyslog
 /etc/rsyslog.conf
 /etc/rsyslog.d
journalctl
 /etc/systemd/journald.conf
 /var/log/journal
tail -f
logrotate
logger
Systemd-cat
 /var/log/syslog
 /var/log/messages

Ereignisanzeige
Gruppenrichtlinien

Paketmanager:

Debian → dpkg, apt-get, apt
RedHat, Fedora → rpm, yum
open suse → zypper
Drittherstellersoftwareseiten

Windows Store, Drittherstellersoftwareseiten

Berechtigungsverwaltung

ls
useradd
usermod
chown
newgrp
userdel
passwd
shadow
groupadd
groupmod
chgrp
groupdel
gshadow
chmod
umask
ldap

Windows Active Directory
Lokale Benutzerverwaltung
Gruppenrichtlinien
AGDLP (NTFS, ACL, SharedFolders)
Ldap

Sicherheit

su
sudo
 /etc/sudoers
 /etc/group

w+Entertaste
 /var/run/utmp

who
last
 /var/log/wtmp
 /var/log/btmp

find / -perm
ulimit
lsuf
fuser

cron
nmap
netstat
socket

inetd
/etc/inetd.conf
/etc/init.d
/etc/inittab

xinetd
/etc/xinetd.conf
/etc/xinetd.d
/etc/systemd/logind.conf

/etc/hosts.allow
/etc/hosts.deny

systemd.socket
/etc/systemd/system/sockets.target.wants
/etc/nologin

putty

ssh
/etc/ssh/sshd_config
/etc/ssh/ssh_config
/etc/hosts.allow
/etc/hosts.deny
/etc/nologin
~/ssh/known_hosts
/etc/ssh/ssh_known_hosts

ssh-keygen
ssh-copy-id
ssh-add

gpg --gen-key
~/gnupg
gpg.conf
gpg --encrypt
gpg --decrypt
gpg --detach-sign
gpg --verify
gpg --gen-revoke
gpg --import
gpg-agent → default-cache-ttl

md5sum
sha256sum
sha512sum

Virtualisierung & Containerisierung:

chroot	
Docker	
VMware vSphere	Hyper-V
ESXi	Docker
XEN	VMware vSphere
KVM	
RedHat Enterprise Virtualization	

Datei & Verzeichnisverwaltung:

mkdir rmdir touch cp mv rm file ls ln	NTFS Datei und Verzeichniskonzept → Explorer
Aufgabenverwaltung:	
systemd-run at atq atrm systemd.timer crontab OnCalendar jobs	Aufgabenplanung
Komprimierung / Archivierung:	
tar gzip bzip2 xz	zip 7zip
Barrierefreiheit:	
Screenreader → Orca Braillezeile Bildschirmlupe Bildschirmtastatur Gesten Spracherkennung Eyetracker	
Remotedesktop:	
xhost /etc/X11/xorg.conf /etc/X11/xorg.conf.d DISPLAY Variable XDMCP VNC XRDP ssh SPICE	Remotedesktop (RDP) Admincenter ssh
Drucker:	
Cups /etc/cups /etc/cups/cupsd.conf lpc lp lpr /var/spool lpq lprm	Spooler

Linux	Windows
Kommandozeilen:	
bash – bourne again shell csh – c-shell tcsh Zsh – z-shell ksh Rsh – remote shell	DOS CMD PowerShell
Texteditoren:	
vi – viewer vim – viewer improved nano – another editor	Editor
Manpages:	
bash man which whatis whereis	cmd /help /? PowerShell Get-help
Backup:	
dd – diskdump od – oktal dump	Windows Sicherung
Libraries:	
Shared Libraries.so ldd – library dependencies ldconfig – library dependencies config	Dynamic Link Libraries.dll
Such & Filterwerkzeuge:	
type which whatis whereis locate find grep pgrep – process grep cat bzip2 cat xzcat – xz cat zcat – gzip cat head tail cut paste sort uniq wc – word count tr – translate sed – streaming editor nl – number line	Explorersuche
Barrierefreiheit:	
Screenreader → Orca Braillezeile Bildschirmlupe Bildschirmstatur	

Linux	Windows
Boot & Dateisysteme:	
BIOS UEFI MBR GPT fdisk – format disk gdisk – GUID disk creator parted mkfs – make file systems mk2fs – make2filesystems mkswap fsck – file checker ext1 ext2 ext3 ext4 XFS xfs_repair xfs_db xfs_fsr btrfs Fat ExFat – extended FAT LVM – Logical Volume Manager	BIOS UEFI MBR GPT NTFS ReFs FAT32 ExFAT
Bootmanager-Kernmodule-init-Startverhalten	
grub-install grub-mkconfig lsmod – list modules uname insmod – install module rmmod – remove module modprobe – module probleme resolver initramfs – initial ram file system dmesg – diagnostic kernel messages SysVinit: /etc/inittab /etc/init.d telinit runlevel dmesg – diagnostic kernel messages Systemd: /etc/systemd /usr/lib/systemd dmesg – diagnostic kernel messages systemctl – system control journalctl – journal control	
Gerätemanagement:	
udev lspci lsusb acpid	Gerätemanager
Speicherauslastung Festplatte / Arbeitsspeicher:	
free du – disk utility df – disk file lsblk – list block devices blkid – block device id	Taskmanager Datenträgerverwaltung

Linux	Windows
Systemprotokollierung:	
rsyslog – rocket-fast system for log processing /etc/rsyslog.conf /etc/rsyslog.d journalctl – journal control /etc/systemd/journald.conf /var/log/journal tail -f logrotate logger Systemd-cat /var/log/syslog /var/log/messages	Ereignisanzeige Gruppenrichtlinien
Paketmanager:	
Debian → dpkg, apt-get, apt RedHat, Fedora → rpm, yum open suse → zypper Drittherstellersoftwareseiten	Windows Store, Drittherstellersoftwareseiten
Berechtigungsverwaltung	
ls - list useradd – add new user usermod – user modify chown – change owner newgrp – new group membership userdel – user delete /etc/passwd /etc/shadow groupadd – add new group groupmod – group modify chgrp – change group groupdel – group delete /etc/gshadow chmod – change modus bits umask – unified file mode creation mask ldap	Windows Active Directory Lokale Benutzerverwaltung Gruppenrichtlinien AGDLP (NTFS, ACL, SharedFolders) Ldap
Sicherheit	
su sudo /etc/sudoers /etc/group w+Entertaste /var/run/utmp who last /var/log/wtmp /var/log/btmp find / -perm ulimit – user limit lsof – list open files fuser – file & process & sockets user cron (daemon) nmap – network mapper → GUI zenmap netstat - network statistics socket inetd /etc/inetd.conf /etc/init.d /etc/inittab xinetd /etc/xinetd.conf	

Gesten Spracherkennung Eyetracker	
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Remotedesktop:	
xhost /etc/X11/xorg.conf /etc/X11/xorg.conf.d DISPLAY Variable XDMCP VNC XRDP ssh SPICE	Remotedesktop (RDP) Admincenter ssh

Barrierefreiheit:	
Screenreader → Orca Braillezeile Bildschirmleupe Bildschirmtastatur Gesten Spracherkennung Eyetracker	

Remotedesktop:	
xhost /etc/X11/xorg.conf /etc/X11/xorg.conf.d DISPLAY Variable XDMCP VNC XRDP ssh SPICE	Remotedesktop (RDP) Admincenter ssh

Drucker:	
Cups – Common Unix Printing Solution /etc/cups /etc/cups/cupsd.conf lpc lp – line printer lpr – line printer /var/spool lpq – line printer queue lprm – line printer remove	Spooler

Prozessmanager:		
top ps pstree kill pkill killall watch fg bg nice renice jobs	– table of processes – processes – process tree – process kill – foreground – background	Taskmanager Prozessmonitor Dienste

Netzwerkconfiguration / Troubelshooting		
/etc/services hostnamectl hostname /etc/hosts /etc/resolv.conf /etc/nsswitch.conf nmcli – network manager command line ifconfig Systemd-networkd ifup ifdown ping ping6 route traceroute traceroute6 tracepath tracepath6 ip – iproute2 netstat – network statistics ss – show sockets netcat /nc /ncat – network controlled swiss army knife		ipconfig tracert arp ping ping6 nslookup netstat

DNS:		
host /etc/hosts /etc/resolv.conf /etc/nsswitch.conf dig – domain information proper nslookup		nslookup C:\Windows\System32\drivers\etc\hosts

Datum & Zeiteinstellung:		
date TZ-Variable tzselect – timezones select Timedatectl – time and date control hwclock – hardware clock ntpdate – network time protocol date ntpq – network time protocol query ntpd chrony uptime		Datum & Uhrzeit Region

/etc/xinetd.d /etc/systemd/logind.conf /etc/hosts.allow /etc/hosts.deney systemd.socket /etc/systemd/system/sockets.target.wants /etc/nologin putty ssh /etc/ssh/sshd_config /etc/ssh/ssh_config /etc/hosts.allow /etc/hosts.deney /etc/nologin ~/.ssh/known_hosts /etc/ssh/ssh_known_hosts ssh-keygen - ssh key generation ssh-copy-id ssh-add gpg –gen-key ~/.gnupg gpg.conf gpg –encrypt gpg –decrypt gpg –detach-sign gpg –verify gpg –gen-revoke gpg –import gpg-agent → default-cache-ttl	
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Virtualisierung Containering:	
chroot Docker VMware vSphere ESXi XEN KVM RedHat Enterprise Virtualization	Hyper-V Docker VMware vSphere

Datei & Verzeichnisverwaltung:	
mkdir – make directory rmdir – remove directory touch cp – copy mv – move rm – remove file ls – list ln – link	NTFS Datei und Verzeichniskonzept → Explorer

Aufgabenverwaltung:	
systemd-run at – at that time /etc/at.allow /etc/at.deney atq – at queue atrm – at remove crontab /etc/cron.allow /etc/cron.deney systemd.timer OnCalendar jobs	Aufgabenplanung

Komprimierung / Archivierung:

Die Tabelle darf frei geteilt und vervielfältigt werden.
Der Urheber der Tabelle muss allerdings zu jederzeit ersichtlich sein:

Urheber: Lars Kammerer
Ersterstelluna: 10.09.2020

tar - tape archiver
gzip
bzip2
xz

zip

7zip

Linux	Windows
Kommandozeilen:	
bash – bourne again shell csh – c-shell tcsh Zsh – z-shell ksh Rsh – remote shell	DOS CMD PowerShell

Variablen	
\$\$ – Momentane Prozess ID \$? – Returncode des letzten Kommandos \$# – Anzahl der Übergabeparameter \$1 \$2 \$3 .. \$9 – einzugebende Variablen \$0 – Name des Scripts / Programmname #! – Shebangzeile / Programmauswahl !n – !Name des Kommandos in der Historie	

Texteditoren:	
vi – viewer vim – viewer improved nano – another editor	Editor

Manpages:	
bash man which whatis whereis	cmd /help /? PowerShell Get-help

Backup:	
dd – diskdump od – oktal dump	Windows Sicherung

Libraries:	
Shared Libraries.so ldd – library dependencies ldconfig – library dependencies config	Dynamic Link Libraries.dll

Such & Filterwerkzeuge:	
type which whatis whereis locate find grep – process grep pgrep cat bzcat – bzip2 cat xzcat – xz cat zcat – gzip cat head tail cut paste sort uniq wc – word count tr – translate sed – streaming editor nl – number line	Explorersuche

Barrierefreiheit:	
Screenreader → Orca Braillezeile Bildschirmlupe	Bildschirmlupe

Linux	Windows
Boot & Dateisysteme:	
BIOS UEFI MBR GPT fdisk – format disk gdisk – GUID disk creator parted mkfs – make file systems mk2fs – make2filesystems mkswap fsck – file checker ext1 ext2 ext3 ext4 XFS xfs_repair xfs_db xfs_fsr btrfs – btree file system Fat ExFat – extended FAT LVM – Logical Volume Manager	BIOS UEFI MBR GPT NTFS Refs FAT32 ExFAT

Bootmanager-Kernelmodule-init-Startverhalten	
grub-install grub-mkconfig lsmod – list modules uname insmod – install module rmmod – remove module modprobe – module probleme resolver initramfs – initial ram file system dmesg – diagnostic kernel messages SysVinit: /etc/inittab /etc/init.d telinit runlevel dmesg – diagnostic kernel messages Systemd: /etc/systemd /usr/lib/systemd dmesg – diagnostic kernel messages systemctl – system control journalctl – journal control	erweiterte Starteinstellungen (Shift-Taste + Neustart → UEFI)

Gerätemanagement:	
udev lspci lsusb acpid	Gerätemanager

Speicherauslastung Festplatte / Arbeitsspeicher:	
free du – disk utility df – disk file lsblk – list block devices blkid – block device id	Taskmanager Datenträgerverwaltung

Prozessmanager:	
top – table of processes ps – processes pstree – process tree kill	

Linux	Windows
Systemprotokollierung:	
rsyslog – rocket-fast system for log processing /etc/rsyslog.conf /etc/rsyslog.d journalctl – journal control /etc/systemd/journal.conf /var/log/journal tail -f logrotate logger Systemd-cat /var/log/syslog /var/log/messages	Ereignisanzeige Lokale / Globale Gruppenrichtlinien

Paketmanager:	
Debian – dpkg, apt-get, apt RedHat, Fedora → rpm, yum open suse → zypper Drittherstellersoftwareseiten	Windows Store, Drittherstellersoftwareseiten

Berechtigungsverwaltung	
ls -list useradd – add new user usermod – user modify → (Änderung primäre Gruppe) chown – change owner newgrp – new group membership userdel – user delete /etc/passwd /etc/shadow groupadd – add new group groupmod – group modify chgrp – change group groupdel – group delete /etc/gshadow chmod – change modus bits umask – unified file mode creation mask getent – get entree passwd / gpasswd – Ändert das Passwort chage – Change Age / Ändert die Passworsteinstellungen	Windows Active Directory Lokale Benutzerverwaltung Gruppenrichtlinien AGDLP (NTFS, ACL, SharedFolders) Ldap

Sicherheit	
md5sum sha256sum sha512sum su sudo /etc/sudoers /etc/group w+Entertaste /var/run/utmp who last /var/log/wtmp /var/log/btmp find / -perm ulimit – user limit lsof – list open files fuser – show file & process & sockets user cron (daemon) nmap – network mapper → GUI zenmap netstat – network statistics socket inetd /etc/inetd.conf /etc/init.d /etc/inittab xinetd /etc/xinetd.conf /etc/xinetd.d /etc/systemd/logind.conf /etc/hosts.allow /etc/hosts.deny	Lokale / Globale Gruppenrichtlinien Bitlocker Windows Hello Biometrikauthentifizierung Windows Firewall Appsicherheit AppLocker Windows Defender Windows Sicherheits Center Kernisolierung PGP GPG

Bildschirmtastatur Gesten Spracherkennung Eyetracker	Bildschirmtastatur Cortana
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Remotedesktop:	
xhost /etc/X11/xorg.conf /etc/X11/xorg.conf.d DISPLAY Variable XDMCP VNC XRDP ssh SPICE	Remotedesktop (RDP) Admincenter ssh

Drucker:	
Cups – Common Unix Printing Solution /etc/cups /etc/cups/cupsd.conf lpc lp – line printer lpr – line printer /var/spool lpq – line printer queue lprm – line printer remove	Spoolerdienst

Legende:	
Fett	– Befehl, Kommando, Programm
Kursiv	– wichtige Verzeichnisseiten
normaler Text	– Alternatives Programm
Anmerkungen:	
- Der Name des Kommandos kann von der Manpage abweichen, wenn der Autor der Meinung war, dass dies der besseren Gedächtnisstütze dienlich sein könnte.	
- Kommandos können doppelt vorkommen wenn der Autor der Meinung war, dass die erneute Erwähnung hilfreich sein könnte.	



Die Tabelle darf frei geteilt und vervielfältigt werden.
Der Urheber der Tabelle muss allerdings zu jederzeit ersichtlich sein:

Urheber: Lars Kammerer
Ersterstellung: 10.09.2020

pkill killall watch fg bg nice renice jobs	– process kill – foreground – background	Taskmanager Prozessmonitor Dienste
---	--	--

Netzwerkconfiguration / Troubelshooting	
/etc/services hostnamectl – hostname control hostname /etc/hosts /etc/resolv.conf /etc/nsswitch.conf nmcli – network manager command line ifconfig Systemd-networkd ifup ifdown ping ping6 route traceroute traceroute6 tracepath tracepath6 ip – iproute2 netstat – network statistics ss – show sockets netcat /nc /ncat – network controled swiss army knife	ipconfig tracert arp ping ping6 nslookup netstat

DNS:	
host /etc/hosts /etc/resolv.conf /etc/nsswitch.conf dig – domain information groper nslookup getent – get entree	nslookup C:\Windows\System32\drivers\etc\hosts

Datum & Zeiteinstellung:	
date TZ-Variable /etc/timezone /etc/localtime /usr/share/zoneinfo /usr/bin/locale tzselect – timezones select Timedatectl – time and date control hwclock – hardware clock /etc/ntp.conf /etc/ntp.drift ntpd – network time protocol date ntpq – network time protocol query ntpd chrony /etc/chrony.conf uptime	Datum & Uhrzeit Region

systemd.socket /etc/systemd/system/sockets.target.wants /etc/nologin putty ssh /etc/ssh/sshd_config /etc/ssh/ssh_config /etc/hosts.allow /etc/hosts.deny /etc/nologin ~/.ssh/known_hosts /etc/ssh/ssh_known_hosts ssh-keygen – ssh key generation ssh-copy-id ssh-add gpg –gen-key ~/.gnupg gpg.conf gpg – encrypt gpg – decrypt gpg – detach-sign gpg – verify gpg – gen-revoke gpg – import gpg - agent → default-cache-ttl	
---	--

Virtualisierung Containering:	
chroot Docker VMware vSphere ESXi XEN KVM RedHat Enterprise Virtualization	Hyper-V Docker VMware vSphere

Datei & Verzeichnisverwaltung:	
mkdir – make directory rmdir – remove directory touch cp – copy mv – move rm – remove file ls – list ln – link	NTFS Datei und Verzeichniskonzept – Explorer

Aufgabenverwaltung:	
systemd-run at – at that time /etc/at.allow /etc/at.deny atq – at queue atrm – at remove cron – chron (the Greek prefix for time) crontab – cron table /etc/cron.allow /etc/cron.deny systemd.timer OnCalendar jobs	Aufgabenplanung

Komprimierung / Archivierung:	
tar – tape archiver gzip bzip2 xz	zip 7zip

[illegible]Seite 28

Komprimierung / Archivierung:		
<pre>tar - tape archiver gzip - g-zipper bzip2 - b2-zipper xz - x-zipper cpio - copy files in and out from archives</pre>	<pre>zip 7zip</pre>	
Remotedesktop:		
<pre>xhost /etc/X11/xorg.conf /etc/X11/xorg.conf.d DISPLAY Variable XDMCP VNC XRDP ssh SPICE</pre>	<pre>Remotedesktop (RDP) Admincenter ssh</pre>	
Barrierefreiheit:		
<pre>Screenreader - Orca Braillezeile Bildschirmlupe Bildschirmtastatur Gesten Spracherkennung Eyetracker</pre>	<pre>Bildschirmlupe Bildschirmtastatur Cortana</pre>	
Drucker:		
<pre>cups - Common Unix Printing Solution /etc/cups /etc/cups/cupsd.conf lpc lp - line printer lpr - line printer /var/spool lpq - line printer queue lprm - line printer remove</pre>	<pre>Spoolerdienst</pre>	
ISO-Dateien erstellen		
<pre>mkisofs - ISO Dateisystem erstellen cdrecord - ISO-Dateien auf CD / DVD schreiben wodim - abgespeckte Alternative zu cdrecord</pre>		
Sonstiges:		
<pre>script - startet eine Aufzeichnung, Beenden mit „ exit “ xmito - Wandelt Dokumente in HTML-Dokumente um passivetex - Wandelt Dokumente in PDF-Dokumente um Adminmeldungen: /etc/issue /etc/issue.net /etc/motd wall shutdown -k systemctl</pre>	<pre>Schrittaufzeichnung</pre>	
RAID / iSCSI / SAN		
<pre>hdparm - hard disk parameters set and get fstrim - filesystem trim and discard unused blocks sdparm - scsi disk parameters set and get nvme - nvme storage command line interface utility IDE-Bus: /dev/hd* iSCSI: /dev/sd* SSD / NVME: /dev/nvme0n* RAID: /etc/fstab mdadm package: md_mod mdadm etc/mdadm/mdadm.conf fdisk RAID-Hexcode -> fd sfdisk cfdisk mkfs resize2fs /proc/mdstat iSCSI: iSCSI - Target:</pre>	<pre>Computerverwaltung Systeminformationen iSCSI-Assistent Windows Server Datei und Speicherdienste</pre>	

<pre>GRUB 2: /boot/grub /boot/grub2 grub-mkconfig /grub.cfg /etc/default/grub /etc/grub.d update-grub2 grub-install Alternative Bootloader: LILO SYSLINUX - Startfähige CDs, USB-Images ISOLINUX - Erstellt startfähige CDs, Disketten Isohybrid - Erweiterung für ISOLINUX zum hinzufügen eines MBR für USB EXTLINUX - Erstellen startfähiger CDs, USB-Sticks für Linux Dateisysteme PXELINUX - Netzwerkboot von Betriebssystemen Shim - Zum Aktivieren oder Deaktivieren von UEFI Secure Boot Systemd-Boot - Erstellen und Ausführen von EFI-Images U-Boot - Genutzt für Microcontroller & Embedded Systems Kernelmodule installieren: insmod - install module rmmod - remove module modprobe - module probleme resolver sysctl - nur für lproc-Parameter uname lsmod - list modules modinfo - modul information depmod - dependencies of modules proc/sys/kernel initramfs - initial ram file system dmesg - diagnostic kernel messages strace strings ltrace /lib/modules/kernel-version/modules.dep SysVinit: /etc/inittab /etc/initt.d /etc/rc.d chkconfig - bei Red Hat Systemen update - rc.d - bei Debian Systemen telinit runlevel dmesg - diagnostic kernel messages Systemd: /etc/systemd /usr/lib/systemd /run/systemd dmesg - diagnostic kernel messages systemctl - system control systemctl - delta journalctl - journal control</pre>	<pre>erweiterte Starteinstellungen (Shift-Taste + Neustart -> UEFI)</pre>
Kernelkomponenten Module & Treiber Kompelierung	
<pre>wget /usr/src /usr/src/linux/Documentation /usr/src/linux/arch/x86/boot/bzImage Alte Kompilierungsschritte bis Kernel Vesion 2.6: make dep make clean make bzImage make zImage make modules make modules_install mkinitramfs - bei Debiansystemen mkinitrd - bei Red Hat Systemen Neue Kompilierungsschritte ab Kernel Version 2.6: gcc - Gnu Compiler Collection make oldconfig oder cp.config make menuconfig make xconfig make gconfig time make all make modules_install mkinitramfs - bei Debiansystemen mkinitrd - bei Red Hat Systemen dracut - Für alle Linux Distributionen Fehlerbehebung: make clean make mrproper zusätzliche Kernelmodule für Software / Hardwarekomponenten: dkms - Dynamic Kernel Module Support</pre>	

Sicherheit		
<pre>md5sum sha256sum sha512sum su sudo /etc/sudoers /etc/group w + Enter taste /var/run/utmp who last /var/log/wtmp /var/log/btmp find / -perm ulimit - user limit lsuf - list open files fuser - show file & process & sockets user cron (deamon) nmap - network mapper -> GUI zenmap netstat - network statistics socket inetd /etc/inetd.conf /etc/initt.d /etc/inittab xinetd /etc/xinetd.conf /etc/xinetd.d /etc/systemd/logind.conf /etc/hosts.allow /etc/hosts.deny systemd.socket /etc/systemd/system/sockets.target.wants /etc/hologin modeprobe dm_mod LUKS (Linux Unified Key Setup) cryptsetup package cryptsetup luksFormat cryptsetup luksOpen Dm-crypt cryptoloop Loop-aes truecrypt putty ssh /etc/ssh/ssh_d_config /etc/ssh/ssh_config /etc/hosts.allow /etc/hosts.deny /etc/hologin ~/.ssh/known_hosts /etc/ssh/ssh_known_hosts ssh-keygen - ssh key generation ssh-copy-id ssh-add gpg -gen-key ~/.gnupg gpg.conf gpg - encrypt gpg - decrypt gpg - detach-sign gpg - verify gpg - gen-revoke gpg - import gpg - agent -> default-cache-ttl</pre>		<pre>Lokale / Globale Gruppenrichtlinien BitLocker Windows Hello Biometrikauthentifizierung Windows Firewall Appsicherheit AppLocker Windows Defender Windows Sicherheits Center Kernisolierung PGP GPG</pre>
Virtualisierung Containering:		
<pre>chroot Docker VMware vSphere ESXi XEN KVM RedHat Enterprise Virtualization</pre>		<pre>Hyper-V Docker VMware vSphere</pre>

<p>Datei & Verzeichnisverwaltung:</p> <ul style="list-style-type: none"> mount - hängt das Dateisystem rw oder r ein umount - hängt das Dateisystem aus /etc/fstab /etc/mtab /proc/mounts sync - Synchronisiert noch nicht geschriebene Dateien auf die Platte mkdir - make directory rmdir - remove directory touch - create new empty data cp - copy mv - move rm - remove file ls - list ln - link 	<p>NTFS Datei und Verzeichniskonzept → Explorer</p>
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Aufgabenverwaltung:	
<p>systemd-run at – at that time /etc/at.allow /etc/at.deny</p> <p>atq – at queue</p> <p>atrm – at remove</p> <p>cron – chron (the Greek prefix for time)</p> <p>crontab – cron table /etc/cron.allow /etc/cron.deny</p> <p>systemd.timer</p> <p>OnCalendar</p> <p>jobs</p>	<p>Aufgabenplanung</p> <p>CMD</p> <p>PowerShell</p>

Kapazitätsplanung & Monitoring	
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smartmontools package: (Self-Monitoring, Analysis and Reporting Technology)

<p>sysstat package:</p> <ul style="list-style-type: none"> <code>/etc/default/sysstat</code> sar - system activity information reporter iostat - input-output statistics <p>iotop package:</p> <ul style="list-style-type: none"> iotop - input-output table of processes vmstat - virtual memory statistics <p>nfsiostat - network file system input-output statistics</p> <p>cfiosstat - common internet file system input-output statistics</p> <p>sadf - sar display files</p> <p>netstat - network statistics</p> <p>ss - show sockets</p> <p>iptraf-ng - ip traffic statistics / ip traffic statistics new generation</p> <p>pidstat - process id statistics</p> <p>top - table of processes</p> <p>htop - highlighted table of processes</p> <p>uptime</p> <p>w</p> <p>lsuf - list open files</p> <p>ps - processes</p> <p>pstree - process tree</p> <p>collectd - collecting data</p> <ul style="list-style-type: none"> <code>/etc/collectd/collectd.conf</code> <code>/var/lib/collectd</code> <p>Rrdtool - roud-robin database tool</p> <p>Cacti</p> <p>MRTG – Multi Router Traffic Graph</p> <p>Nagios</p> <p>Icinga2</p>	<p>Taskmanager</p> <p>Ressourcenmonitor</p> <p>Ereignisanzeige</p> <p>Gruppenrichtlinien</p> <p>CMD</p> <p>PowerShell</p>
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Linux	Windows
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FTP-Server	
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OpenLDAP Server	
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Linux	Windows
<p>Legende:</p> <p>Fett – Bash Befehl, Kommando, Daemon, Programm, Package Kursiv – wichtige Verzeichnisseiten nach Distributionen normaler Text – Alternatives Programm</p> <p>Anmerkungen:</p> <ul style="list-style-type: none"> - Die Namensklärung des Kommandos kann von der Manpage ggf. abweichen, wenn der Autor der Meinung war, dass dies der besseren Gedächtnisstütze dienlich sein könnte. - Kommandos können doppelt vorkommen wenn der Autor der Meinung war, dass die erneute Erwähnung hilfreich sein könnte. 	



Die Tabelle darf frei geteilt und vervielfältigt werden.
Der Urheber der Tabelle muss allerdings zu jederzeit ersichtlich sein:

Uhrhvor, Lars Kammerer
Erstellt am: 11.09.2020

Kommandozeilen:	
<p>bash – bourne again shell csh – c-shell tcsh Zsh – z-shell ksh rsh – remote shell</p>	DOS CMD PowerShell
Admintools:	
<p>screen tmux</p>	

Variablen
<p>\$S – Momentane Prozess ID \$? – Returncode des letzten Kommandos \$* – Anzahl der Übergabeparameter \$1 \$2 \$3 .. \$9 – einzugebende Variablen \$0 – Name des Scripts / Programmname !! – Shebangzeile / Programmauswahl ! – !Name des Kommandos in der Historie</p>

Texteditoren:	
<p>vi – viewer vim – viewer improved nano – another editor</p>	Editor

Manpages:	
<p>bash man which whatis whereis</p>	cmd help /? PowerShell Get-help

Libraries:	
<p>Shared Libraries.so ldd – library dependencies ldconfig – library dependencies config</p>	Dynamic Link Libraries.dll

Such & Filterwerkzeuge:	
<p>type which whatis whereis locate</p> <p>find grep pgrep – process grep</p> <p>cat bzcat – bzip2 cat xzcat – xz cat zcat – gzip cat</p> <p>head – Kopfzeile der Datei + n-Zeilen tail – Fußzeile der Datei + n-Zeilen cut – Ausschneiden (Gesamt oder Teilstücke) paste – Einfügen des Inhalts sort – Sortierung der Ansicht (Alphabetisch usw.) uniq – Doppelte Inhalt ausblenden wc – word count tr – translate sed – streaming editor nl – number line</p>	Explorersuche

Backup:	
<p>dd – diskdump od – oktal dump tar – tape archiver mt <i>etc/resyncd.conf</i> /boot etc /var /lib /sbin /bin /opt /root /home /usr</p>	Windows Sicherung

Komprimierung / Archivierung:	
<p>tar – tape archiver gzip – g-zipper bzip2 – b2-zipper xz – x-zipper cpio – copy files in and out from archives</p>	zip 7zip

Remotedesktop:	
<p>xhost <i>etc/X11/xorg.conf</i> <i>etc/X11/xorg.conf.d</i> DISPLAY Variable XDMCP VNC</p>	Remotedesktop (RDP) Admincenter ssh

Linux	Windows
Bootsektor & Festplatten	
<p>BIOS UEFI MBR GPT</p> <p>hdparm – hard disk parameters set and get fstirm – filesystem trim and discard unused blocks sdparm – scsi disk parameters set and get nvme – nvme storage command line interface utility</p> <p>IDE-Bus: <i>/dev/hd*</i></p> <p>ISCSI: <i>/dev/sd*</i></p> <p>SSD / NVME: <i>/dev/nvme0n*</i></p> <p>mount – hängt das Dateisystem rw oder r ein umount – hängt das Dateisystem aus <i>etc/stab</i> <i>etc/mtab</i> <i>/proc/mounts</i></p> <p>autoifs package: (automatic mount) <i>etc/auto.master</i> <i>etc/auto/mountpoints</i></p> <p>lsblk – list block devices blkid – block device id <i>dev/disk/by-uuid</i></p> <p>sync – Synchronisiert noch nicht geschriebene Dateien auf die Platte</p> <p>fdisk – format disk partition table cdisk – cursor based format disk partition table gdisk – GUID disk creator parted – Partition Editor partprobe</p> <p>mkfs – make file systems mkfs2 – make partitions to filesystems (-c Overwrite Partition !) mkswap – make SWAP-Date / Partition fsck / e2fsck – file checker <i>etc/fstab</i></p> <p>ext1, ext2, ext3, ext4 resize2fs tune2fs – tuneable to filesystem parameters debugfs – file system debugger dump2fs – file system dumper</p> <p>XFS xfs_info xfs_fs xfs_check xfs_repair xfs_dump xfsrestore</p> <p>Btrfs-tools package: btrfs – btrees file system btrfs-convert</p> <p>Fat ExFat – extended FAT</p> <p>LVM vgscan -v <i>etc/lvm/acheil/cache</i> <i>etc/lvm/lvm.conf</i> pvcreate vgcreate mkfs – make file systems resize2fs lvreduce vgreduce lvcreate</p> <p>ZFS – Zettabyte File System</p>	<p>BIOS UEFI MBR GPT</p> <p>Computerverwaltung</p> <p>NTFS FAT32 ExFAT</p>

Bootmanager-Kernelmodule-init-Startverhalten	
<p>Bootmanager installieren:</p> <p><i>/boot/efi</i> efibootmgr</p> <p>GRUB-Legacy: <i>/boot/grub</i> <i>/boot/grub/device.map</i> <i>menu.lst</i></p> <p>GRUB 2: <i>/boot/grub</i> <i>/boot/grub2</i> grub-mkconfig <i>/grub.cfg</i> <i>etc/default/grub</i> <i>etc/grub.d</i> update-grub2 grub-install</p> <p>Alternative Bootloader: LILO SYSLINUX – Startfähige CDs, USB-Images ISOLINUX – Erstellt startfähige CDs, Disketten isohybrid – Erweiterung für ISOLINUX zum hinzufügen eines MBR für USB EXTLINUX – Erstellen startfähiger CDs, USB-Sticks für Linux Daesysteme PXELINUX – Netzwerkboot von Betriebssystemen Shim – Zum Aktivieren oder Deaktivieren von UEFI Secure Boot Systemd-Boot – Erstellen und Ausführen von EFI-Images U-Boot – Genutzt für Microcontroller & Embedded Systems</p> <p>Kernelmodule installieren:</p> <p>insmod – install module rmmod – remove module modprobe – module probleme resolver sysctl – nur für <i>proc</i>-Parameter</p> <p>uname lsmod – list modules modinfo – modul information depmod – dependencies of modules <i>proc/sys/kernel</i> initramfs – initial ram file system</p>	<p>erweiterte Starteinstellungen (Shift-Taste + Neustart – UEFI)</p>

Linux	Windows
Datum & Zeiteinstellung:	
<p>date TZ-Variable <i>etc/timezone</i> <i>etc/localtime</i> <i>usr/share/zoneinfo</i> <i>usr/bin/locate</i> tzselect – timezones select timedatectl – time and date control hwclock – hardware clock <i>etc/ntp.conf</i> <i>etc/ntp.drift</i></p> <p>ntpdate – network time protocol date (Online NTP-Serverpool)</p> <p>ntpd – ntp - daemon ntpq – network time protocol query ntpdcc <i>etc/ntp.conf</i> <i>etc/ntp.drift</i> chronyc – synchronize time confitg <i>etc/chrony.conf</i> uptime</p>	Datum & Uhrzeit Region

Systemprotokollierung:	
<p>smartmontools package: (Self-Monitoring, Analysis and Reporting Technology) smartctl – SMART Control smartd – SMART Daemon <i>etc/default/smartmontools</i> <i>etc/smartd.conf</i></p> <p>rsyslog – rocket-fast system for log processing <i>etc/rsyslog.conf</i> <i>etc/rsyslog.d</i> journalctl – journal control <i>etc/systemd/journal.conf</i> <i>/var/log/journal</i></p> <p>tail -f logrotate logger Systemd-cat <i>/var/log/syslog</i> <i>/var/log/messages</i></p>	Ereignisanzeige Lokale / Globale Gruppenrichtlinien

Paketmanager:	
<p>Debian – dpkg, apt-get, apt, apt-cache search RedHat, Fedora – rpm, yum open suse – zypper Drittherstellersoftwareseiten</p>	Windows Store, Drittherstellersoftwareseiten

Softwarekompilierung	
<p><i>usr/src</i> – Mögliches Verzeichnis zum entpacken tar – tape archiver gzip – g-zipper bzip2 – b2-zipper xz – x-zipper configure – Script zum erstellen von makelle make – erstelltes File zum Compilieren make make install</p>	

Berechtigungsverwaltung	
<p>ls - list useradd – add new user usermod – user modify – (Änderung primäre Gruppe) chown – change owner newgrp – new group membership userdel – user delete <i>etc/passwd</i> <i>etc/shadow</i></p> <p>groupadd – add new group groupmod – group modify chgrp – change group groupdel – group delete <i>etc/gshadow</i></p> <p>chmod – change modus bits umask – unified file mode creation mask getent – get entree passwd / gpasswd – Ändert das Passwort chage – Change Age / Ändert die Passworteinstellungen</p>	Windows Active Directory Lokale Benutzerverwaltung Gruppenrichtlinien AGDLP (NTFS, ACL, SharedFolders) Ldap

Sicherheit	
<p>md5sum sha256sum sha512sum</p> <p>su sudo <i>etc/suders</i> <i>etc/group</i></p> <p>w + Enterlaste <i>/usr/unlump</i> who last <i>/var/log/wtmp</i> <i>/var/log/utmp</i></p> <p>find / -perm ulimit – user limit lsuf – list open files fuser – show file & process & sockets user cron (daemon) nmap – network mapper – GUI zenmap netstat – network statistics socket</p> <p>inetd <i>etc/inetd.conf</i> <i>etc/inet.d</i> <i>etc/inetd</i> xinetd <i>etc/xinetd.conf</i> <i>etc/xinetd.d</i> <i>etc/systemd/logind.conf</i> <i>etc/hosts.allow</i> <i>etc/hosts.deny</i></p>	Lokale / Globale Gruppenrichtlinien BitLocker Windows Hello Biometrikauthentifizierung Windows Firewall AppSicherheits AppLocker Windows Defender Windows Sicherheits Center Kernsollierung PGP GPG

<p>XRDP ssh SPICE</p>	
<p>Barrierefreiheit:</p> <p>Screenreader - Orca Braillezeile Bildschirmlupe Bildschirmtastatur Gesten Spracherkennung Eyetracker</p>	<p>Bildschirmlupe Bildschirmtastatur Cortana</p>
<p>Drucker:</p> <p>cups - Common Unix Printing Solution <i>/etc/cups</i> <i>/etc/cups/cupsd.conf</i></p> <p>lp lp - line printer lpr - line printer <i>/var/spool</i> lpq - line printer queue lprm - line printer remove</p>	<p>Spoolerdienst</p>
<p>ISO-Dateien erstellen</p> <p>mkisofs - ISO Dateisystem erstellen cdrecord - ISO-Dateien auf CD / DVD schreiben wodim - abgespeckte Alternative zu cdrecord</p>	
<p>Sonstiges:</p> <p>script - startet eine Aufzeichnung, Beenden mit „exit“</p> <p>xmilo - Wandelt Dokumente in HTML-Dokumente um passivetex - Wandelt Dokumente in PDF-Dokumente um</p> <p>Adminmeldungen: <i>/etc/issue</i> <i>/etc/issue.net</i> <i>/etc/motd</i> wall shutdown -k systemctl</p>	<p>Schrittaufzeichnung</p>
<p>RAID / iSCSI / SAN</p> <p>hdparm - hard disk parameters set and get fsadm - filesystem trim and discard unused blocks sdparm - scsi disk parameters set and get nvme - nvme storage command line interface utility</p> <p>IDE-Bus: <i>/dev/hd*</i></p> <p>SCSI: <i>/dev/sd*</i></p> <p>SSD / NVME: <i>/dev/nvme0*</i></p> <p>RAID: <i>/etc/ftab</i> mdadm package: md_mod mdadm <i>etc/mdadm/mdadm.conf</i> fdisk RAID-Hexcode - fd sfdisk cfdisk mkfs resizefs <i>/proc/mdstat</i></p> <p>SCSI: SCSI - Target: iscsitarget package: <i>/etc/default/iscsitaraget</i> → True <i>/etc/iet/ietd.conf</i> targetcli-ib package targetcli</p> <p>ISCSI-Initiator:</p> <p>open-iscsi package: <i>etc/iscsi/iscsid.conf</i> → automatic iscsiadm scsi_id fdisk mkfs</p>	<p>Computerverwaltung Systeminformationen</p> <p>ISCSI-Assistent Windows Server Datei und Speicherdienste</p>
<p>Router</p> <p><i>/etc/sysctl.conf</i> <i>/etc/ipvs6.conf</i> <i>/etc/services</i></p> <p>Troubleshooting: nmcli - network manager command line systemd-networkd ifup ifdown</p> <p>ping / ping6 traceroute / traceroute6 tracepath / tracepath6</p> <p>ifconfig route arp ip - iproute2</p> <p>iwconfig - interfaces wireless configuration iwlist - interfaces wireless list iw - interfaces wireless iwevent - interface wireless event</p>	

<p>dmesg - diagnostic kernel messages strace strings ltrace <i>/lib/modules/kernel-version/modules.dep</i></p> <p>SysVinit: <i>/etc/inittab</i> <i>/etc/init.d</i> <i>/etc/rc.d</i> chkconfig - bei Red Hat Systemen update - rc.d - bei Debian Systemen telinit runlevel dmesg - diagnostic kernel messages</p> <p>Systemd: <i>/etc/systemd</i> <i>/usr/lib/systemd</i> <i>/run/systemd</i> dmesg - diagnostic kernel messages systemctl - system control systemct - delta journalctl - journal control</p>	
<p>Kernelkomponenten Module & Treiber Kompilierung</p>	
<p>wget <i>/usr/src</i> <i>/usr/src/linux/Documentation</i> <i>/usr/src/linux/arch/x86/boot/bzImage</i></p> <p>Alte Kompilierungsschritte bis Kernel Version 2.6: make dep make clean make bzImage make zImage make modules make modules_install mkinitramfs - bei Debiansystemen mkinitrd - bei Red Hat Systemen</p> <p>Neue Kompilierungsschritte ab Kernel Version 2.6: gcc - Gnu Compiler Collection make oldconfig oder cp.config make menuconfig make xconfig make gconfig time make all make modules_install mkinitramfs - bei Debiansystemen mkinitrd - bei Red Hat Systemen dracut - Für alle Linux Distributionen</p> <p>Fehlerbehebung: make clean make mproper zusätzliche Kernelmodule für Software / Hardwarekomponenten: dkms - Dynamic Kernel Module Support</p>	
<p>Gerätemanagement:</p> <p>udev - universal device manager <i>/etc/udev</i> <i>/etc/udev/rules.d</i> <i>/etc/udev/udev.conf</i> udevmonitor - user device monitor udevadm - user device management tools lspci lsusb lsdev acpid</p>	
<p>Speicherauslastung Festplatte / Arbeitsspeicher:</p> <p>free - disk utility df - disk file lsblk - list block devices lshw - block device id <i>/dev/disk/by-uuid</i></p>	
<p>Prozessmanager:</p> <p>top - table of processes ps - processes pstree - process tree kill killall - process kill killall watch fg - foreground bg - background nice renice jobs</p>	
<p>Netzwerkkonfiguration / DNS-Konfiguration / Troubleshooting</p> <p><i>/etc/sysctl.conf</i></p> <p>Netzwerkkonfiguration: <i>/etc/services</i> <i>/etc/system/network</i> <i>/etc/network</i> - bei Debian-Derivaten <i>/etc/sysconfig/network-scripts</i> - bei RedHat-Derivaten <i>/etc/interfaces</i></p> <p>DNS: hostnamed - hostname control hostname <i>/etc/hosts</i> <i>/etc/resolv.conf</i> <i>/etc/switch.conf</i> dig - domain information groper nslookup - name server look up getent resolvectl - resolve control</p> <p>Troubleshooting: nmcli - network manager command line</p>	
<p>Netzwerk und Freigabecenter</p> <p>nslookup C:\Windows\System32\drivers\etc\hosts</p>	

<p>systemd.socket <i>/etc/systemd/system/sockets.target.wants</i> <i>/etc/nologin</i></p> <p>modeprobe dm_mod LUKS (Linux Unified Key Setup) cryptsetup package cryptsetup luksFormat cryptsetup luksOpen</p> <p>Dm-crypt cryptoloop Loop-aes truecrypt</p> <p>putty</p> <p>ssh <i>/etc/ssh/sshd_config</i> <i>/etc/ssh/ssh_config</i> <i>/etc/hosts.allow</i> <i>/etc/hosts.deny</i> <i>/etc/nologin</i> <i>/etc/ssh/known_hosts</i> <i>/etc/ssh/known_hosts</i> <i>/etc/ssh/known_hosts</i></p> <p>ssh-keygen - ssh key generation ssh-copy-id ssh-add</p> <p>gpg - gen-key ~/.gnupg gpg.conf gpg - encrypt gpg - decrypt gpg - detach-sign gpg - verify gpg - gen-revoke gpg - import gpg - agent -- default-cache-ttl</p>	
<p>Virtualisierung Containering:</p>	
<p>chroot Docker VMware vSphere ESXi XEN KVM RedHat Enterprise Virtualization</p>	<p>Hyper-V Docker VMware vSphere</p>
<p>Datei & Verzeichnisverwaltung:</p>	
<p>mount - hängt das Dateisystem rw oder r ein umount - hängt das Dateisystem aus <i>/etc/mtab</i> <i>/etc/mtab</i> <i>/proc/mounts</i> sync mkdir - Synchronisiert noch nicht geschriebene Dateien auf die Platte rmdir - make directory rm - remove directory touch - create new empty data cp - copy mv - move rm - remove file ls - list ln - link</p>	<p>NTFS Datei und Verzeichniskonzept – Explorer</p>
<p>Aufgabenverwaltung:</p>	
<p>systemd-run at - at that time <i>/etc/at.allow</i> <i>/etc/at.deny</i> atq - at queue atrm - at remove cron - cron (the Greek prefix for time) crontab - cron table <i>/etc/cron.allow</i> <i>/etc/cron.deny</i> systemd.timer OnCalendar jobs</p>	<p>Aufgabenplanung CMD PowerShell</p>
<p>Kapazitätsplanung & Monitoring</p>	
<p>smartmontools package: (Self-Monitoring, Analysis and Reporting Technology) smartctl - smart control and monitoring disks smartd - smart disk monitoring daemon <i>/etc/default/smartmontools</i> <i>/etc/smartd.conf</i></p> <p>sysstat package: <i>/etc/default/sysstat</i> sar - system activity information reporter iostat - input-output statistics</p> <p>iotop package: iotop - input-output table of processes vmstat - virtual memory statistics</p> <p>nfsiostat - network file system input-output statistics cifsiostat - common internet file system input-output statistics sadt - sar display files</p> <p>netstat - network statistics ss - show sockets lptraf-ng - ip traffic statistics / ip traffic statistics new generation</p> <p>pidstat - process id statistics</p> <p>top - table of processes htop - highlighted table of processes uptime w ls - list open files ps - processes pstree - process tree</p> <p>collectd - collecting data <i>/etc/collectd/collectd.conf</i> <i>/var/lib/collectd</i> Rrdtool - roud-robin database tool</p> <p>Cacti MRTG – Multi Router Traffic Graph</p>	<p>Taskmanager Ressourcenmonitor Ereignisanzeige Gruppenrichtlinien CMD PowerShell</p>

<p>pam_unix.so</p> <p>pam_cracklib.so</p> <p>pam_limits.so</p> <p> /etc/security/limits.conf</p> <p>pam_listfile</p> <p> /etc/pam.conf</p> <p> /etc/pam.d</p> <p> /etc/nsswitch.conf</p> <p>PAM - Authentifizierung mit LDAP:</p> <p>libpam-ldap / libpam-ldapd package - Debian</p> <p>nss_ldap package - RedHat</p> <p> /etc/nsswitch.conf</p> <p> /etc/pam.d/common-auth - Debian</p> <p> /etc/pam.d/system-auth-ac - RedHat</p> <p>PAM - Authentifizierung mit System Security Services Deamon (SSSD):</p> <p>sssd package</p> <p> /etc/nsswitch.conf</p>		<p>Cyrus</p> <p>Sieve</p> <p>UW-IMP</p> <p>Courier</p> <p>Mail User Agent (MUA):</p> <p>Kmail</p> <p>Evolution</p> <p>Thunderbird</p> <p>Outlook</p>
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